HYGEIA

The HEALTH MAGAZINE

PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION

Aug. 1934

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Infantile
Paralysis

Beginning: The Eye Book

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WHEATIES "*The Breakfast of Champions*"

WITH ABUNDANT MILK OR CREAM, SUGAR AND SOME KIND OF FRUIT

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HYGEIA•

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● Dr. Hyman Cohen presents the first of a series of articles on the eye, its structure, functions and diseases. . . . Dr. Abraham Tow is adjunct professor of pediatrics, New York Polyclinic Medical School and Hospital. . . . Melba Acheson, a previous contributor to Hygeia, tells of the joys of vacationing at home.

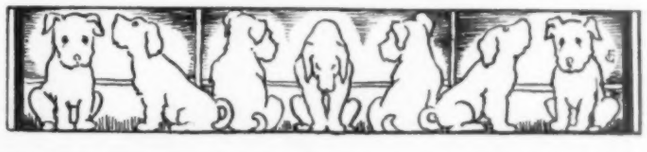
● Dr. W. W. Bauer, associate editor of Hygeia, presents another of his modern fables. . . . Ellen Grindell tells how one mother, with the aid of a psychiatrist, overcame her child's fear of dogs. . . . Robert H. Brotman, D.D.S., is a frequent contributor to Hygeia. Among his recent articles are "Tooth Decay," "Pyorrhea," and "The Effect of Teeth on Facial Expression."

● Dr. Hubert A. Royster was formerly dean and professor of gynecology, North Carolina School of Medicine. . . . In refutation of the theory that modern woman is inferior in health and stamina to her grandmother, Frances B. Williams contributes "The Decline of Declines." . . . Farnsworth Crowder, a father, considers the effects of modern education on the minds of his child and other children.

● Dr. Louis C. Schroeder is assistant professor of pediatrics, Cornell University Medical College. . . . Practical hints to the amateur nurse are given by Anne Delaney, R.N. . . . With the chapter on "The Joy of Living," Alfred E. Parker, physical education instructor, Berkeley (Calif.) High School, concludes his series, "Training for Athletics and Health."

● Dr. Claude Lillingston, whose articles, "Pioneers of Medicine," were published in Hygeia, continues his series on "Our Parasites." . . . Dr. Lenna L. Meanes is medical director, Women's Foundation for Health. . . . Doris W. McCray, food consultant, discusses beverages which have been accepted by the American Medical Association's Committee on Foods.

● Dr. Oscar Reiss, associate professor of pediatrics, University of Southern California Medical School, and Dorothy Walter Baruch, instructor in education, Whittier College, give as the concluding advice in their series, "I Want to Know," a chapter entitled "As You Go on Living."



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AUGUST, 1934

Infantile Paralysis

NEWSPAPERS have heralded widely the fact that the southern portion of the state of California is now witnessing the spread of infantile paralysis which has apparently affected more than 1,200 persons including several notables of movieland. Infantile paralysis is always worse in the months from June to November. It tends to diminish in October and to disappear with the coming of the first really cold weather. For several years the condition seems to have been building up in California; there have been more than the usual number of cases there during the last three or four years.

The protection of a child against infantile paralysis is one of the most difficult problems in preventive medicine. The exact cause of the disease has not been determined. There seems to be good evidence that it is due to a virus, a form of infective organism too small to be seen even with the ordinary microscope. The disease is apparently transmitted not only by contact with those who are sick but also by contact with those who apparently are well. Persons who are carriers of the disease may spread it exactly as healthy carriers of scarlet fever and diphtheria may serve to spread those diseases.

Infantile paralysis, also called acute anterior poliomyelitis because it affects primarily the front portions of the spinal cord, is one of the most dread diseases. It seriously cripples those who have it in a serious form. Again and again, doctors see patients who did not realize that they had this disease because it came on so insidiously. It begins like any ordinary acute cold or infectious disease with fever, headache, vomiting, congestion of the throat and nightly sweating. It differs from most of the infectious diseases in that a slight stiffness of the back and neck is associated with it.

IN TIMES when paralysis is prevalent in the community any of these symptoms should be considered suspiciously, and the child concerned should be put to bed immediately. Such steps taken early may make a great difference in the final result.

Many investigators are convinced of the value of injections of blood serum, which is the fluid matter of the blood, taken from patients who recently have recovered from infan-

EDITORIAL

tile paralysis. This serum is supposed to be of use not only in the prevention but also in the treatment of infantile paralysis. Others feel that the injection of the serum of any adult person is useful because such serum has also been found to contain antisubstances useful against infantile paralysis.

HOWEVER, there is also some scientific evidence to indicate that neither of these methods has been used to a sufficient extent to make certain that it is or is not of value. Many extensive experiments are now being made in many portions of the country in which serum stations have been established to determine with greater certainty the merits of these methods.

The child who has infantile paralysis in an acute stage must have absolute quiet as an important factor toward making as complete a recovery as possible. It should be obvious that the functioning or working of any inflamed tissue is bad for it. That is why a specialist is necessary. He will probably fix the limbs and tissues in the most suitable position and in that way prevent movement until the acute inflammatory stage is over. From six to eight weeks may be necessary for the damaged nerve cells to make as much of a recovery as possible.

While the muscles and tissues are at rest during this period, it is important that they are kept in a position in which there is no strain on them. One specialist says that even the weight of the bedclothes may cause excess pressure on the limbs and that the placing of pillows under the knees may start deformities. Simply propping the patient up in bed may cause a disturbance in the back. If there is pain and soreness in the muscles, the use of heat and rest usually will bring relief.

From six to eight weeks after the acute condition has passed, the tenderness will have disappeared and some power will return to the muscles. This is the time when muscle training and massage should be begun.

PATIENTS are encouraged to move the joints, but they never should be permitted to work to the point of fatigue. Far too often, parents who do not understand the situation urge the child to move or permit his limbs to be manipulated by incompetent masseurs or healers, with the result that irreparable damage ensues.

At this period, exercises under water are especially valuable, because the buoyancy of the water permits movement without strain or stress. Rest and the avoidance of undesirable manipulation are the most important factors in the treatment of the early stages of infantile paralysis.

Infantile Paralysis

By PHILIP LEWIN

INFANTILE PARALYSIS is a disease characterized by an acute infection usually occurring during the late summer or early autumn and revealing itself by certain signs and symptoms, such as a stomach and intestinal upset or a nervous attack, during the course of which, or soon thereafter, there may occur a weakness or paralysis of the muscles of the arms or legs, or both; or of the muscles of the abdomen and back.

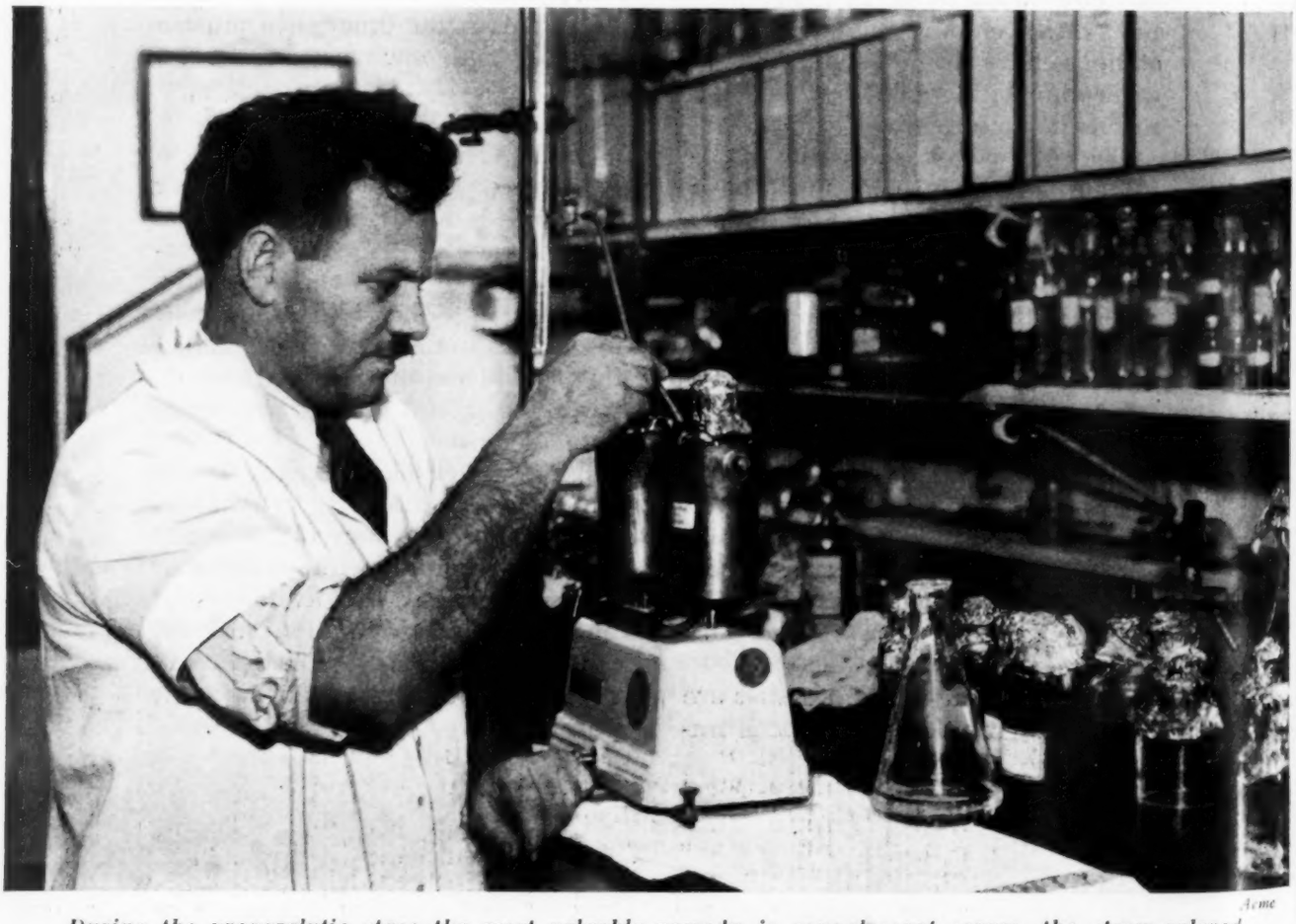
A similar condition occurs in adults and can be produced in certain animals.

The name acute anterior poliomyelitis describes the parts of the central nervous system that are inflamed. The word paralysis means weakness, which may range from easy fatigue to complete paralysis.

Infantile paralysis is not a new disease. It was not until 1840, however, that a clear conception of the disease was established. The first important epidemic in America occurred in Vermont in 1894. Dr. John Ruhräh, professor of diseases of children in a Baltimore medical college, contracted this disease while he was traveling in Europe three or four years ago. President Franklin Delano Roosevelt was taken ill with it while on a vacation in Maine in 1921.

The cause of infantile paralysis is unknown; but the symptoms are well known, and the treatment is on a definite scientific basis. The alleged factors included in the transmission of the disease are flies, vermin, unwashed fruits and vegetables, unpasteurized and uncertified milk, and sick children. "Polio" carriers are individuals who harbor and pass on the infection, although they themselves are not ill.

The path of entrance of the poison into the body has been indicated as the nose, throat or



Acme

During the preparalytic stage the most valuable remedy is convalescent serum, the straw-colored fluid part of the blood of patients who have lived through attacks of infantile paralysis.

digestive tract. The lymphatic glands in the abdomen are considered important in this connection. Infantile paralysis often attacks the healthy, robust baby or child. It is rare in young infants. It has been called "the one child in a family" disease. Until recently, few cases were reported in which an attending doctor or nurse contracted the disease.

The disease may begin suddenly or come on gradually. The list of symptoms would include most of the reactions of children to any illness, and any combination of these indications might occur in infantile paralysis. The general symptoms include a feeling of drowsiness, stupor, loss of appetite, lack of interest in the surroundings, irritability, fretfulness and restlessness. The child may be cross or suffer a change in disposition. He may have a flushed face, muscle twitchings and trembling of the hands on attempting to reach for objects. A sore throat and fever are usually present. Vomiting may occur. There may be inactivity or overactivity of the intestines. Retention of urine is a common sign. There may simply be a cold or a running nose or a headache. Stiffness of the neck is an extremely important symptom, as is also tenderness over the spine. Convulsions or delirium may occur. The eyes usually have the "glassy stare."

The local manifestations are weakness of the muscles of the arm, hand, shoulder, thigh, foot, back or abdomen. This weakness may be slight or so severe as to constitute a real paralysis. Tenderness over the muscles and skin of the arms and legs is usually present.

The most important stage of this disease is what is known as the preparalytic stage, which is the period before paralysis occurs. It is in this stage that the child has no paralysis but has many or all the symptoms already mentioned, chief of which are restlessness, fretfulness and expression of anxiety, stiffness of the neck and back, tenderness over the spine, tenderness of the muscles of the arms and legs and sensitiveness of the skin of the arms and legs. A symptom that is especially important is that the child does not want to be held, played with or fondled. This should indicate to the mother that the child has not a simple illness.

The combination of fever, headache, drowsiness, restlessness, irritability, apprehension, trembling, vomiting, constipation, flushed face, unusual perspiration, stiffness of the neck, tenderness of the spine and retention of urine is sufficient to make one strongly suspicious of infantile paralysis and calls for a withdrawal of some fluid from the lower portion of the back, which usually clinches the diagnosis even before paralysis has occurred. It is the doctor's duty, not the mother's, to diagnose infantile paralysis. The doctor should be called in all cases of fever, headache, vomiting, stiffness of the neck, tenderness of the back, trembling, drowsiness or irritability.

It was formerly thought that the diagnosis of infantile paralysis could not be made until the child was paralyzed. This is a gross error. Most cases can be diagnosed before the paralysis occurs. This diagnosis, however, depends to a considerable extent on the examination of what is known as the spinal fluid; that is, the fluid which can be removed through a comparatively slight procedure consisting of a puncture of the lower part of the back. When this fluid is examined under the microscope and chemically in the laboratory, the diagnosis can usually be made with certainty. The family doctor should be given full authority to call in consultation a child specialist and a nerve specialist. Mothers should not refuse permission to draw off a little fluid from the lower part of the back for laboratory examination.

There are great variations in intensity of this disease and in the progress of the patient. Prog-

Postulates of "Polio"

1. *Avoid sick children at all times.*
2. *Avoid gatherings of children during the summer and autumn months, especially baby contests.*
3. *Avoid unwashed raw fruits and vegetables.*
4. *Avoid unpasteurized or uncertified milk.*
5. *Call a reputable physician; and if he is perplexed, ask him to call another doctor in consultation.*
6. *Prevent deformity by maintaining joints in a neutral or normal position by simple bandages, splints, sand bags, salt bags and pillows.*
7. *If a child has contracted infantile paralysis, he needs rest and still more rest.*
8. *Avoid fatigue of nerves and muscles.*
9. *If the back and leg muscles are extensively affected, do not allow the child to stand or walk for one year.*
10. *Have patience; never give up, and always keep up the patient's morale.*

ress depends, to a considerable extent, on two persons—the mother and the doctor who first sees the child. When in doubt, the mother should call in a specialist. If that specialist is in doubt, he should be asked to call another specialist; and if there is still doubt, the child should be treated as though he had infantile paralysis.

As prophylactic treatment it is of great importance to keep up the resistance of all children by proper rest periods, fresh air, sunshine, protective foods, exercise, elimination and good posture.

It is vitally important that the proper active treatment is given at the earliest moment. The objectives of treatment are to save life, prevent deformity and minimize disability. The doctor strives to preserve the normal shape of the body and limbs and to conserve the power of the nerves and muscles.

During the preparalytic stage the most valuable remedy is what is known as convalescent serum. Convalescent serum is the straw-colored fluid part of the blood of patients who have lived through attacks of infantile paralysis. At the present there are numerous serum stations where convalescent serum may be obtained. The health commissioner of every city knows where these stations are located.

Doris E. Wright

Avoid unpasteurized or uncertified milk.

Another valuable remedy is the serum from normal healthy adults. Another agent, known as infantile paralysis serum, can be obtained by any competent druggist. The whole blood of normal healthy adults is of value.

These remedial agents are most valuable when they are given early. They may or may not be of value when they are given late. If they are given before the paralysis has occurred, they will either prevent paralysis or minimize its extent and severity. If they are given late, they may not affect the parts already damaged but may prevent further spread of the disease. The repeated removal of excess fluid from the lower part of the back is a valuable measure. The application of ice bags to the back of the neck and to the spine is exceedingly helpful. Medicines are used as tonics and stimulants and to reduce fever.

During the preparalytic and the paralytic stages the limbs must be kept in the best position for future use. The bed should be low and the mattress firm. The patient should be made comfortable. The legs must be held straight; the toes must point toward the ceiling, and the knees should be bent slightly. The arms should be held out from the sides; the wrists should be held in slight upward position, and the fingers should be flexed. These positions are usually easily obtained by means of sand bags, pillows, bags of salt or splints. A cradle should be used to keep the coverings off the feet. It is most important that the patient should be handled with the greatest gentleness because the disease often causes extreme sensitiveness and tenderness. The warm bath in a tub is invaluable. A block and tackle apparatus may be used to lift, lower and transport the patient.

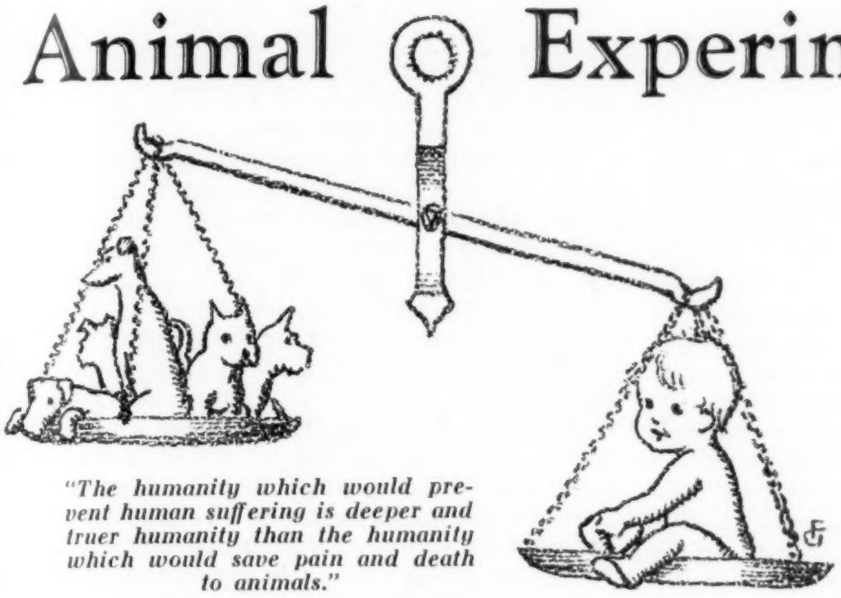
Treatment during the latter stages of the disease includes splints, plaster-of-paris casts, braces, warm sea salt baths, swimming, underwater gymnastics, warm springs, muscle training and operations.

No one can predict an epidemic of infantile paralysis. It is impossible to run away from the disease; therefore the aim is to concentrate on its early recognition and immediate treatment. When an epidemic threatens, all healthy recovered patients should be ready to give blood for new cases. It is our hope that by early diagnosis and the prompt use of serum, the paralysis can be taken out of the disease called infantile paralysis.

[NOTE.—This is the first of a series of articles on anterior poliomyelitis, or infantile paralysis. The second, "Waging War on 'Polio,'" written by Stella Randolph, will appear in the September HYGEIA, and the third, "The Parent and the Handicapped Child," by Dr. John Ruhräh, is scheduled for publication in the October issue.]

The Clubwoman Looks at

Animal Experimentation



"The humanity which would prevent human suffering is deeper and truer humanity than the humanity which would save pain and death to animals."

By

GERTRUDE H. CAMPBELL

WHAT TO DO with my newly acquired leisure? This is the question that many thousands of women are called on to answer. Many of these women have previously had their time largely taken up in rearing their families; too suddenly they find their children are adults with definite ideas and plans for their own individual lives. Mother's position as adviser and director becomes practically non-existent, and it is then that mother's interest must diverge into other channels.

Many women become affiliated with one or more of the numerous women's organizations and study clubs. That is the time when the erstwhile mother must be conservative, think for herself and beware of accepting thoughtlessly the ready formed ideas of others; many of these ideas are being promoted in a most zealous, aggressive and often one-sided, but withal inspirational, manner.

One of the most frequent appeals to such women is that of the group opposing vivisection, more properly called animal experimentation. The appeal, made to the tender heart of the mother, is a plea against what is termed the useless, cruel suffering of poor animals, certainly a false description of the scientifically conducted experiments in which pain to the animal is minimized through anesthesia and in which death, if necessary, is euthanasia.

The mother, now clubwoman, must think back and recall the great benefits that have accrued to her as a result of these humane experiments in combating the all too frequent illnesses in her family.

Mothers as mothers and mothers as clubwomen instinctively are friends of human health, and they should have an appreciation of the tremendous good that has come to the inhabitants of the whole world as a result of experimental work on animals; they should resent strenuously the suggestion that such experiments should be forbidden by law.

As the clubwoman studies the subject, she finds that for about 2,300 years, surgery and medicine, with the single exception of the discovery of smallpox vaccine in the year 1796, were practically at a standstill. During the past fifty years, however, medicine has been revolutionized, and countless millions of lives have been saved. Through the successful public demonstration of anesthesia in 1845 by William Morton and shortly afterward through the introduction to the world of aseptic surgery by Lord Lister, much pain has been alleviated. This miraculous medical advance would have been much delayed without animal experimentation.

The alert woman soon learns that practically all the dread diseases such as smallpox, rabies, diphtheria, typhoid, tetanus, hookworm, cholera, bubonic plague and many others have been brought under comparative control. They now exact a toll of only a few lives in comparison with the millions that were swept away when these diseases were rampant. These lives, which otherwise would have been sacrificed, were saved as a result of years of study and tests with white mice, white rats, guinea-pigs, dogs, sheep and even horses.

How enthralling this woman finds it to read about the appointment of Major Walter Reed by the United States government to head the commission to combat yellow fever, that dreadful pest of humanity. Since yellow fever was

annually killing millions of persons (in New Orleans alone only 30 less than 8,000 died of yellow fever in 1853), and since no animal could be found that could be inoculated with this disease, Dr. Reed believed with Hippocrates that "extreme remedies are very appropriate for extreme diseases"; and so when members of his commission volunteered themselves for experimental purposes, their offer was accepted. Through their valiant heroism the information needed about the cause and spread of yellow fever was discovered and the disease was conquered. No one could prevent this woman from seeing such films as "Yellow Jack," which depicts the courageous fight made by Dr. Reed and his men. If these tests with animals were forbidden by law, then surgery and medicine would necessarily remain deadlocked or else human beings would be used as guinea-pigs.

On further study, this industrious woman finds that Loeffler discovered the bacillus and von Behring the antitoxin for diphtheria by extensive experiments with rabbits and guinea-pigs. Before this, in the year 1894, 180 of every 100,000 inhabitants of Boston died of this disease; in 1905, after the treatments were used, only 22 persons in every 100,000 died of it. It is estimated that within ten years New York State can be rid entirely of diphtheria.

This investigating woman is amazed to find that each year in the United States about 50,000 persons who are bitten by dogs take the Pasteur treatment because it is known that 20 per cent of those bitten by rabid dogs develop rabies, which is incurable. If this treatment were not available, there would be 10,000 horrible deaths from rabies in the United States each year instead of the average of 10 deaths now annually reported. This vaccine for the prevention of rabies was made possible through endless days of experiments with guinea-pigs, rabid dogs and well dogs by Pasteur and his assistants.

The clubwoman is heartened by the fact that it was through the experiments of Semmelweiss, Pasteur and Dr. Oliver Wendell Holmes that puerperal fever was found to be caused by the ubiquitous streptococcus. In Prussia, puerperal fever caused the death at childbirth of 363,000 women during the sixty-five years preceding 1875. It was found that this infection was spread by unclean hands and instruments; asepsis as taught by Lord Lister reduced the deaths of mothers during confinement from 20 per cent at that time to less than 0.5 per cent as shown by current reports of lying-in hospitals.

The inquiring clubwoman is appalled to learn that 1 of every 72 men in the Spanish-American War died of typhoid and that, through tests with animals, a vaccine was made so that in 1916 the number of deaths was reduced to only 1 in 20,000 among the troops mobilized on the Mexican border. One could point out and enumerate to the clubwoman almost indefinitely the instances in which animals used in research have saved innumerable human lives through the discovery of scientific information pertaining to diabetes, Addison's disease, tuberculosis, malaria, meningitis and even cancer. However, cancer is not as yet conquered, nor will it be conquered if experimental work on animals is abolished. At the present time, cancer ranks second in the number of fatalities among the diseases of the human race.

This thoughtful woman will wonder why, if those persons who oppose animal experimentation are so extremely sensitive to pain and torture in the lower animals, they continue to use the flesh of the millions of animals killed for food and why they, for a large percentage of them are women, wear furs throughout the year when they must know that, to secure these furs, untold numbers of animals suffer agony and torture from the trap and the gun. When this woman is given the information that more pain and suffering are inflicted on animals by hunters and trappers in one day than have been inflicted on animals through experimentation in the entire history of such experimentation, she will appreciate the wisdom and discernment of the late Charles W. Eliot of Harvard when he said, "The humanity which would prevent human suffering is deeper and truer humanity than the humanity which would save pain and death to animals."

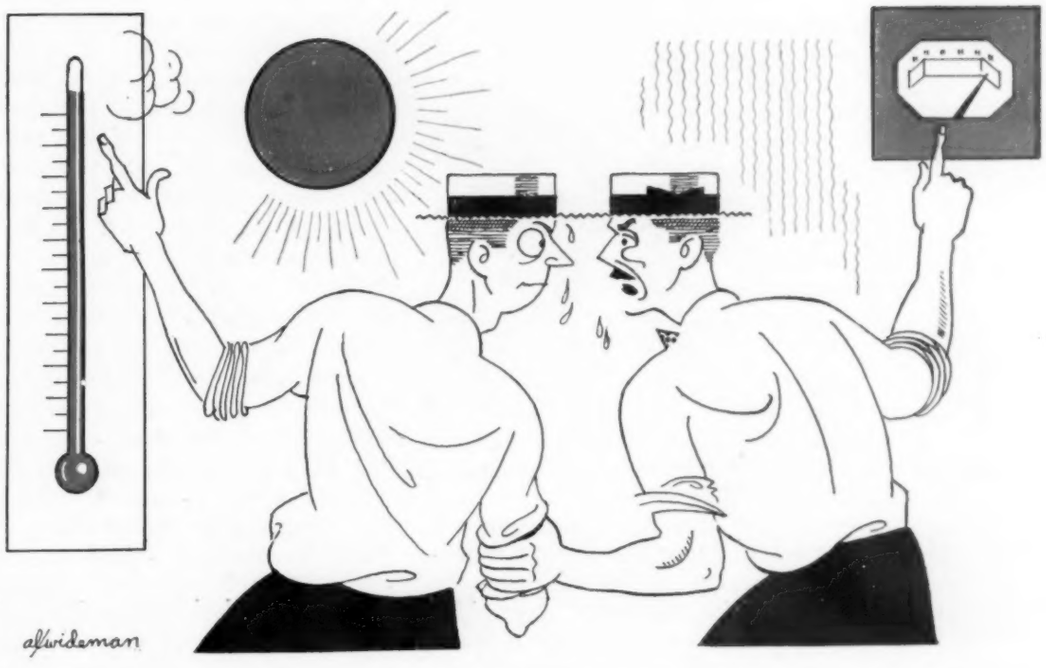
The clubwoman and mother must realize that the names of these eminent men of medicine who spent so much of their lives in long, tedious and wearying hours of study and experimentation will go down in history as the greatest benefactors of mankind. They are greater even than the inventors who have made life pleasant, for they have saved life itself. The well read woman cannot understand how other intelligent, well posted men and women, when they have these facts, can fail to appreciate what these scientists have done for them, for their families and for the peoples of the world.

Surely if she has had the value of this experimentation brought home to her by the actual saving of the life of a member of her own family, as I have, this clubwoman and mother will not want this kind of work abolished. Ill from diphtheria, gasping for breath, apparently with but a few hours to live, my son was saved by the use of antitoxin; how deeply grateful I am to Dr. von Behring who discovered the antidiphtheritic serum and made this possible! No one, I repeat, who has thus had a precious life saved, can have much tolerance or patience for the seemingly misguided efforts of those who oppose animal experimentation.

My only explanation of the attitude of those who are opposed to scientific animal experimentation, and I believe the enlightened clubwoman agrees with me, is this: "They are down on it because they are not up on it."

Your Skin Is Your Refrigerator

By LEE D. CADY



Though it is often said that "It's not the heat, it's the humidity," nevertheless both share in creating discomfort during hot weather.

SO OFTEN we hear that "It's not the heat, it's the humidity" that makes us uncomfortable during hot weather. First, let me insist that it is the heat and that it is the humidity. Both make us uncomfortable, wiseacres notwithstanding. Obviously, if it is hot and then the moisture content of the air becomes greater, we feel the heat more. And that comes about in the following way:

Nature has provided our bodies with cooling systems of about 2 million sweat glands. Even in winter when we do not seem to perspire at all we have what is called insensible perspiration, and our skins give up to the air by evaporation nearly a quart of perspiration every twenty-four hours. We know that if we exercise briskly enough or become embarrassed, or if the atmosphere about us is heated to a temperature that is high enough, visible perspiration breaks out on our skins. That happens because our skins are trying to keep our body temperatures down to normal. The perspiration has been poured out so rapidly that it cannot evaporate with sufficient rapidity, and so it remains visible. If we did not perspire, our body temperatures would rise above normal even when atmospheric temperatures were below 98.6 F. We would be having high fevers whenever atmospheric temperatures ranged above ordinary body temperature.

The secretion of the sweat glands is practically all water; and when it evaporates, it has a cooling effect on the surface of the body. It works in the same way that evaporating water in an air-conditioning system of a building works. When 1 Gm. of water is evaporated, it absorbs approximately 570 calories of heat. In other words, when water becomes a gas, it contains that much more heat without being any hotter. That also means that the water has been absorbed by the air and that about 570 calories of heat has been taken along with it. Therefore, if 1 Gm. of perspiration evaporates from the surface of the skin, the skin and the layer of air next to it have been cooled by the absorption of about 570 calories of heat. Since perspiration comes from the blood, it also means that the body has lost a good many calories of heat.

In this way we are being comforted by nature's cooling system in a fairly efficient manner on hot days. That is, we are cooled comfortably unless the air is already well loaded with water vapor. On sultry days the air is nearly saturated with moisture and cannot

Electric fans undoubtedly afford comfort, but one should not be continuously in the draft caused by them.

readily take up the water from our skins; therefore, we do not lose as much heat from our bodies as we would if the air were dry. We feel the heat more, have more visible perspiration dripping from us, and we say that we are hot because of the humidity and not because of the heat. We would be more comfortable were the air drier, the heat remaining the same, because there would be better evaporation of the perspiration. If we cannot dry the air, we fan ourselves and make more moist air pass over our skins. That also hastens evaporation, and we like it.

There is more to perspiring than merely sweating, or the evaporation of water from our skins. Perspiration has many of the elements of the blood in it. Among other things, it contains common salt in relatively large amounts, traces of sugar and several substances which the kidneys normally excrete. Every one has noticed that perspiration tastes salty. Every one knows that it may be irritating to the skin if the salts are not removed from tender portions. And every one knows that perspiration may be odorous if it is not removed often enough. The odor comes from certain aromatic substances found naturally in perspiration and from the action of bacteria, which breaks down the sugar and some of the other substances into additional odorous substances. In fact, perspiration is a fair culture medium for certain kinds of bacteria, while other kinds of bacteria do not like it so well because it becomes acid in reaction. This acidity also accounts for some of the irritating characteristics of perspiration.

Men working in high temperatures lose a tremendous amount of water and salts from the blood unless these substances are replaced as rapidly as they exude from the skin. When the humidity is high, the sweat literally pours off the body, so that the blood becomes starved for its normal constituents. If they are not quickly replaced, the starvation for salts is passed on to the tissue cells; then things begin to happen. Heat cramps or heat exhaustion may occur; such conditions are serious and may cause death.

Curious though it may seem, if the blood is starved of salt and if the tissue cells still have their normal amounts, the cells have a tendency to swell, because nature wants all salt solutions in balance. Water goes into the cells where there is the most salt. When this happens in certain parts of the brain, it makes a serious disturbance in the heat regulation centers, and the body cannot then throw off heat by perspiration. The body temperature will then go on up until its own heat literally kills the sufferer. Strange as it may seem, one of the best ways to treat heat exhaustion is to inject a solution of salt into the blood in the veins. Such a salt solution must be much more concentrated than any that occurs naturally. The more concentrated solution in the circulating blood attracts water from the swollen tissue cells so that they can resume their normal functions.

Some years ago doctors began to study heat exhaustion with the idea of trying to do something to prevent it as well as to cure it. They were working in an ideal place for their investigations, in some of the deep South African mines where heat exhaustion was common among the native workmen. After all their observations and tests, they came to a simple recommendation, which is, at first thought, rather paradoxic. They recommended that common salt should be added to the drinking water for the workmen.

Indeed, that was a strange thing for the doctors to prescribe, for every one knows that salt makes people thirsty. The doctors insisted that it should be tried out. It was tried out, and incidence of heat cramps and heat exhaustion in the mines was noticeably decreased. The practice has spread into other industries where workmen are exposed to high temperatures.

If injecting salt water into the blood is good medicine for heat sickness, might not drinking the right amount of salt water prevent it? It does, and doctors sometimes have patients who are given "drinks" without the formality of swallowing. Distilled water containing only 0.9 per cent of chemically pure common salt is injected. It may be put directly into the veins, immediately under the skin, into the peritoneal

cavity or even into the muscles. Of course, it is not a pleasant procedure, but many a person is living today because the body fluids have been kept up by this sort of treatment.

Common salt is not all that the body cells demand for health or well being. There must be the proper balance between acids and alkalis, and there should be traces of calcium and the phosphates. A St. Louis doctor has devised a solution which is far more efficacious than the simple salt solution and which has not been improved on for several years.

How is one to withstand the effects of summer heat with the least discomfort? There are several things that help. If most of them are observed, one is not so uncomfortable and one gets through the day with less fatigue and feels fresher and more energetic.

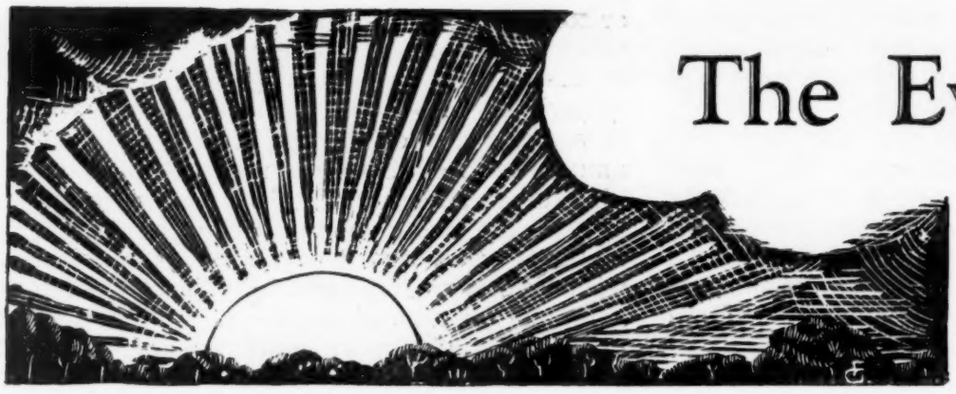
First, overdrinking of fluids should not be indulged in, for that tends to produce the very thing that should be avoided; namely, a relatively great salt concentration in the tissue cells. If the kidneys are healthy, one may increase the amount of common salt in the food or even drink a little in water. If the day is extremely hot, one may need a total intake of salt amounting to about 1 heaping teaspoonful, but food contains salt naturally, so one should not begin dosing oneself with salt early in the morning and keep it up all through the day. Too much salt is harmful, for there must be an approximate balance in all things. The person who enjoys putting salt on his food may safely experiment with using double or triple the amount usually employed. Double the usual consumption is probably near the right amount. If too much salt is used, intestinal upsets arise as when epsom salt, Glauber's salt or too much ice water is taken.

Second, food may be varied to be more suitable for hot weather. In the beginning, one does not need as much heat-producing food on hot days as one needs during the winter. The process of digesting lean meat and other proteins is an exothermic chemical action. That is, heat is actually given off during digestion. Since the body must get rid of that heat, it is as well to eliminate it beforehand by not eating so much meat during hot days. While fats cause the most heat in the body before they are completely used up, they do not have this exothermic digestive reaction. Eating fats in summer does not make one feel unduly warm. It is a well known engineering fact that a big boiler does not lose as much steam by radiation in proportion to its contents as does the smaller one. The same is true with human beings despite the fact that we all have cooling systems. The fat person must perspire more than the lean.

Sugars and starches in the diet are necessary for energy requirements, summer or winter. However, any excesses of these must be burned up as energy, stored in the form of liver sugar, or converted into fat and stored away for future use. Even so, we should not take any great excess of starches and sugars if we wish to remain as cool and comfortable as possible. Nevertheless, we should have an adequate amount of food. Starvation is weakening in any kind of weather, and it is a bad practice to reduce the food taken during hot days to amounts below actual requirements. The body withstands heat and humidity best when it is in a healthy state of nutrition. Common sense practices are far more conducive to well being than fads are.

I mentioned something about keeping the air in motion when I discussed the cooling effects of evaporation. That brings up the subject of fans. If more air comes into contact with the perspiration on the skin, more is evaporated. This means there will be better cooling, and that cooling will be adequate if it is possible to dry the perspiration as soon as it reaches the surface. Nobody can doubt the comforting and beneficial effect of fans, but there is the question of too much drying of the sensitive membranes of the eyes and of the nose. It is quite possible to contract a cold in hot summer if the membranes of the nose and throat are dried out and irritated. Therefore, one should not be continuously in the draft caused by the fan. It is better to be in the eddy currents and not in the wind current. While one is less sensitive to drafts in the summer time it is, of course, a serious mistake to subject oneself to them unwisely.

To prevent heat exhaustion, they recommended the addition of salt to the drinking water.



The Eye Book

By
HYMAN
COHEN

I. High Office of the Eye

THE EYE is a living optical instrument that perceives images. With the aid of the brain these images are converted into informative sight.

Ernest Haeckel, the far-famed biologist and evolutionary philosopher, called the eye the noblest organ in the body. It is the most splendidly useful. Of the five special senses, sight is the foremost means of contact with the world at large. On the interior walls of the eye are hung light-blazoned pictures in a constantly changing procession of the images coming from the outside world. The consciousness of man waits on the eye. In the midst of the huge medley of things stationary and things fleeting, the eye establishes orientation; it indicates "man's place in nature." By means of the eye, measurement, estimate, comparison and judgment are made possible. It is through the function of sight, largely, that all knowledge of things is obtained and verified, for "seeing is believing." Anything in existence coming within view makes an image in the eye; and the making of images builds the greatest of the creative faculties, the imagination. It is a prime factor in esthetics and is its touchstone of truth, for it is here that beauty buds and is proclaimed.

It is here, too, that man in his moral aspect is mirrored unmasked, where confessional is made by his deepest self.

The speech of "eye to eye," the heart speech and murmur of the blood's deepest longing, of communication beyond the power of words, that too is part of its rôle in life.

Biologically, medically, socially and culturally, the eye is of prime importance and most significantly useful.

And no wonder, for its parent is the sun himself. There, above, is the sun, which has poured its light down on the earth ever since these two have traveled the spaces. It hatched all living things; it made their surfaces sensitive and responsive to its impinging rays. When the first lowly creatures needed sight, the sun, by its insistence, generated the eye. Never since have the creatures, high and low, thus outfitted and adorned, ceased to worship, each in its own way and measure, the source that gave them eyes with which to see; nor has mankind ceased to marvel at the spectacle before it and to be thankful for the greatest of all gifts, sight.

First the sun made the eye; later the human eye testified to the sun's glory and worshipped it; the partnership of these two is inseparable unless man defaults and negligently allows the light of his eyes to become obscured or to go out. That happens not infrequently.

Better knowledge of the eye, its structure, its functioning and the care it requires, will safeguard and conserve its usefulness, so that it may keep with the sun as long as life keeps with the body.

II. Structure

IT WILL BE necessary later to discuss the causes and consequences of the afflictions that befall the eyes. But first one should become better acquainted with the anatomy of the eye and find out how it is built for the business of seeing. To this end, a reconstruction of the eye, following nature's own model, will be helpful.

Two worlds, the world of things without and the world of the self within, meet by means of the eye and establish relationships for various important purposes in life. The eye, that most delicate of organs, is ambassador to the brain and is one of the most important directors of human activity.

To begin with, where shall the eye be placed for greatest usefulness and for safety? Where is a lookout placed? On the top of a mountain, on the highest part of a building, or at the masthead of a ship. There is every reason for putting the human eye in front, or in the line of forward movement. It should be placed not only as high as possible and in front but likewise in a safe, protected place.

Therefore it is placed "headmost" in the skull, where many of the bones in concert offer it hospitality under the protecting eaves of the brow, in the cone-shaped, bony cavities, the orbits. Here it will be safe and snug with the world in front and the brain, its headquarters, immediately back of it.

Why is the eyesocket called the orbit? Because it forms the circular path that the eye

travels when looking in various directions. Besides the eyeball, each orbit contains the supporting bands and the bedding of fat that cradle the eyeball; the blood vessels that nourish the eye, and the nerves that control it.

The external muscles of the eye are composed of four straight and two oblique muscles originating from the bony orbit and so ingeniously anchored in the eyeball as to be able to move it in every direction.

Before the construction of the eye proper is begun, there are a few more details which require attention. Every eye is built to serve for many years and has to face many hazards during its long existence. Its safety and comfort, therefore, must be provided for. The bony orbit as such, its tissues and the padding of fat afford lodgment and protection to the inclosed part of the eye.

The front of the eye, however, is exposed to the air practically all the time, to its drying effects, to small drifting and whirling particles and to many kinds of bacteria always present in the air.

To keep the eye moist so that it can move about comfortably, and to provide a means of washing away the injurious particles and the bacteria, an irrigation system must be installed. This consists of a tear gland for each eye, placed forward in the orbit above the eyeball and to the outside of it. The tears in their descent from the little sprinkler tubes, downward and toward the nose over the exposed part of the eyeball, will effectually cleanse the eye and wash all harmful matter away. From the inner angle of the eye they drain into the nose through the tear sac and duct.

There is still more to be provided. The round, open doorways of the orbits exposing the front structures of the eyes, and especially the precious, transparent, little, round window, the cornea, must certainly be guarded from injury.

To do that, gates, or eyelids, are hung on these open gateways. There is one from above, continuous with the skin of the forehead, one from below, extending from the skin of the face, muscles for their working, fibrous plates for their stiffening and shaping, blood for their feeding, nerves for their direction, oil glands for the protection of the lid borders, and lashes for their quick sensing of danger. And now the lids are ready, in their proverbial "quick as a wink" manner, to protect the exposed front part of the eyes against all danger, to shield them during sleep and to offer a momentary respite by shutting out the too insistent world during the busy hours of the day.

A thin, membranous tissue, the conjunctiva, is used to join the lids to the eyeball, to give these structures a protective covering and at the same time to allow for free movement. This tissue covers the lid surfaces that rest against the eyeball, and is then reflected on the latter, leaving

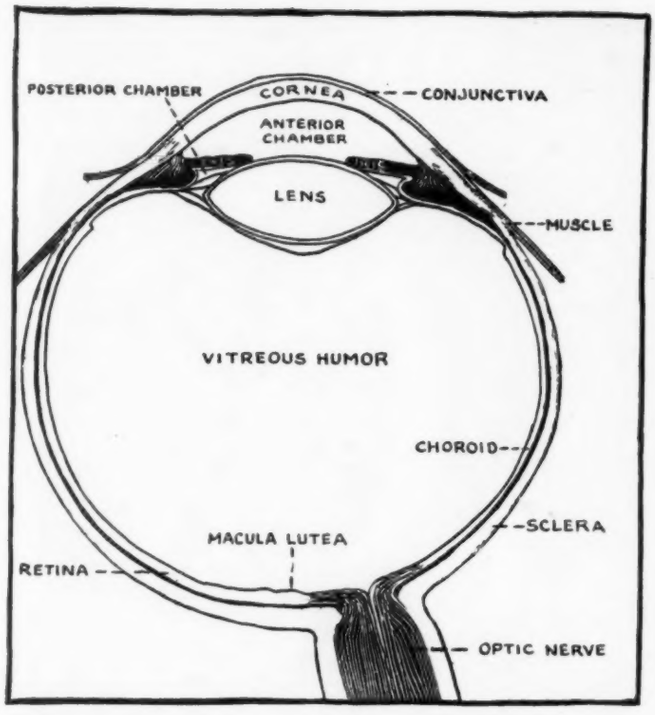
At the masthead of the ship stands the lookout.

plenty of slack where it folds back. In this manner it forms a sort of pouch, the conjunctival sac. It is rich in blood supply, but it is absolutely transparent where it overlies the cornea.

The stage is now set for building and installing the living optical organ, the eyeball, that very small and yet most spacious meeting ground of the inner and outer worlds, whose powers of vision can encompass anything from a pinpoint to a swarm of constellations.

The eyeball measures about 1 inch in all diameters. It can best be visualized as a whole by likening it to a round, red-skinned little onion with the round root area in front representing the colored part in front of the eye and the tail in the back of it resembling the nerve of sight, the optic nerve.

However, unlike the onion, the eyeball has only three layers or coats; these form the shell of the eyeball, leaving a spherical space inside for the contents. The three layers of the shell of the eye differ further from the little onion in their arrangement and structural nature. The



Horizontal section of eye, showing upper surface of lower segment.

one on the outside, the sclera, is tough and white; it is the white of the eye. The middle one, or choroid, is dark, spongy and succulent, as though it were made out of a hollowed mulberry. The innermost layer, the retina, is like the red outer coat of the little onion, except that it is placed inside, with the tail going through the other two coats and sticking out behind.

Each of these layers or coats has its own function; all are incomplete in front where a round opening is left, into which fit other structures essential to the business of seeing.

The sclerotic coat, as I have said, is white, tough, inelastic and opaque. It is made thus in order to keep the shape of the eyeball constant, to protect its contents and to allow no light to pass into the eye except through the transparent window, the cornea, which completes it in front. The circular line of junction between the sclera and the cornea, between the white of the eye and the coinlike part that shows the color of the eye, is called the limbus. Immediately outside this circle, in the substance of the sclera, there is a circular hollow, a canal resembling the inner tube of a tiny automobile tire, through which the fluids of the eye drain off. When that channel, or the approach to it, becomes blocked, the grave disease known as glaucoma results. A little farther back, but on the surface of the coat, are inserted the muscles that move the eyes in various directions.

The choroid, the dark, spongy middle coat, is almost entirely made up of blood vessels that furnish the nourishing blood to the eye and carry off its wastes. It is the source of the fluids of the eye. Its abundant supply of pigment cells gives it the dark brown color required by the eye, a living camera, as a background for the projection of images.

Innermost is the retina, a delicate, transparent coat which appears red when it is illumined. The retina is a 10-ply web-work of cells and fibers, tiered layer on layer. The most sensitive to light is the layer consisting of the rods and cones. Here the images from the outside world are perceived and sent on to the brain through the layer of nerve fibers and the optic nerve. The retina is the sight-sensory coat of the eye, in reality a cuplike expansion of the optic nerve.

Two structures in the retina require special consideration. One is the optic disk or "nerve head," the blind spot of the eye. This is found a little to the outer side of the central point in the background of the eye and represents the optic nerve before it spreads out to form the retina. It is a round spot, of an orange hue somewhat like that of a full harvest moon. In the center of it are the blood vessels that supply the retina. Because it has no sight cells and consists of nerve fibers only, it can merely conduct images from the retina to the brain but cannot "see"; hence it is called the blind spot.

The macula lutea, the yellow spot, is the most sensitive part of the sight-sensory coat; and in the center of that is a still more sensitive area called the fovea. These areas are located in the back part of the inside of the eye, directly behind the center of the pupil. There the physiochemical changes that make sight are most active; there the images are perceived most distinctly.

To conduct the images of objects within the eye's view to the retina, every substance and structure inside the eyeball, lying directly in the line of vision, must be transparent. These are, from the outside in, the cornea; the water-like fluid, or aqueous humor, in the front chamber behind the cornea; the pea-shaped structure called the crystalline lens, and the jelly-like substance, or vitreous humor, filling the back part of the inner spherical hollow of the shell.

Not only must the cornea and the crystalline lens be transparent, but they must also be able to bring the parallel rays entering the eye to a point of concentration or focus. This power is also possessed by the fluid substances, aqueous and vitreous, though to a lesser degree.

A round opening in front of the sclera, the tough, opaque outer coat, has been left through which the light can enter the eye. Fitting into it, in the manner of a watch crystal, is a round plate of living glass, the cornea. It is about ½ inch in diameter and $\frac{1}{50}$ inch in thickness; it is perfectly transparent and projects a little forward on the front of the eyeball. Besides allowing the light to pass through, it gives the rays the first convergent turn to form them into a point.

Back of that window a little space is reserved as a chamber for a clear, water-like fluid, the aqueous humor, which allows the light to pass through, supports the nearby structures and takes part in the inner drainage of the eye.

All around the outer boundary of this water compartment, this chamber forms an acute angle, the filtration angle; this is not sealed up but is closed over by a latticework of tissue through the little openings of which the fluids leave the eye. It is important to remember this in connection with the disease known as glaucoma.

Inside the front chamber, suspended in its fluid, is an apron-like continuation of the middle coat, or choroid, which is the iris. It varies in color from pure blue to deep brown and acts as a shutter for the regulation of light that enters through the pupil, the round hole in the center. The structure of the iris is like the spider's web with a hole in the center. It consists almost entirely of blood vessels and a muscle that contracts and dilates the pupil. It has no direct part in the conduction and refraction of light.

The pupil is not a structure; it is a round hole, cut out in the center of the extremely light-sensitive, elastic shutter, the iris. It regulates the amount of light entering the eye and makes possible the circulation of the inner fluids. The average diameter of the pupil is about ⅛ inch. It changes in size with the amount of light and with age. In health it is perfectly round and black. It is of great diagnostic importance in many diseases, especially in those affecting the nervous system. In such diseases the pupils of the two eyes may be unequal in size, both dilated or both contracted. When the iris is pulled out of shape by disease, the pupil loses its roundness. When the pupil is not uniformly black, it has become involved in some disease, or a neighboring structure has become diseased; most frequently this is a cataract. The pupils of albinos have a pinkish luminosity.

Directly behind the iris and the pupil is the crystalline lens. It is a transparent, elastic body, resembling a medium sized pea both in size and in shape, and is encased in a capsule. Like the cornea, it conducts and focuses the light that passes through the eye. In addition, it plays an important part in the adjustment for near vision in the process called accommodation.

Up in front, surrounding its open mouth, the vascular sac that constitutes the middle coat of the eye becomes thickened and puckered, and contains a circular muscle that acts like an elastic purse string. This is the ciliary body and muscle, the inner wheel-like muscle of the eye. Inside the wheel muscle are fine, lacy spokes, the suspensory ligament. In the center of this is set and held in place the crystalline lens, like a pearly bead in a round bit of fine lacework. The entire mechanism—lens, suspensory fibers and muscle—may be likened to an automobile wheel. The lens is the hub, but it is globular, solid and proportionately larger; the suspensory fibers are the spokes, and the muscle is the tire.

The largest part of the cavity of the eyeball is occupied by a glassy, transparent substance, the vitreous humor. In consistency it is not unlike the white of an egg, but it is a little thicker and of a straw tinge. In front of it are the lens and the ciliary body; everywhere else it rests against the silky web-work of the retina. Through it the light reaches the retina. Because it fills the large, inner spherical space, it helps the eye to keep its shape and to maintain its proper tension.

Now that the eyeball is built and placed, it must be furnished with blood vessels for the nourishment of its coats and muscles, and there must be channels for the circulation of lymph, the transparent, fluid part of the blood, so that the structures that must remain transparent, the cornea, the lens and the vitreous humor, may be nourished.

One more thing must be considered; it is the arrangement to regulate the flow of liquids into and out of the inner chambers of the eye. This is vitally important for the health and proper functioning of the eye. The inflow of liquid takes place from the middle vascular coat of the eye by a filtering process through the walls of the blood vessels. The liquid goes on through the lymph channels and is drained away by larger lymph spaces and channels, at the front of the eye, which empty into the larger veins through the filtration angle.

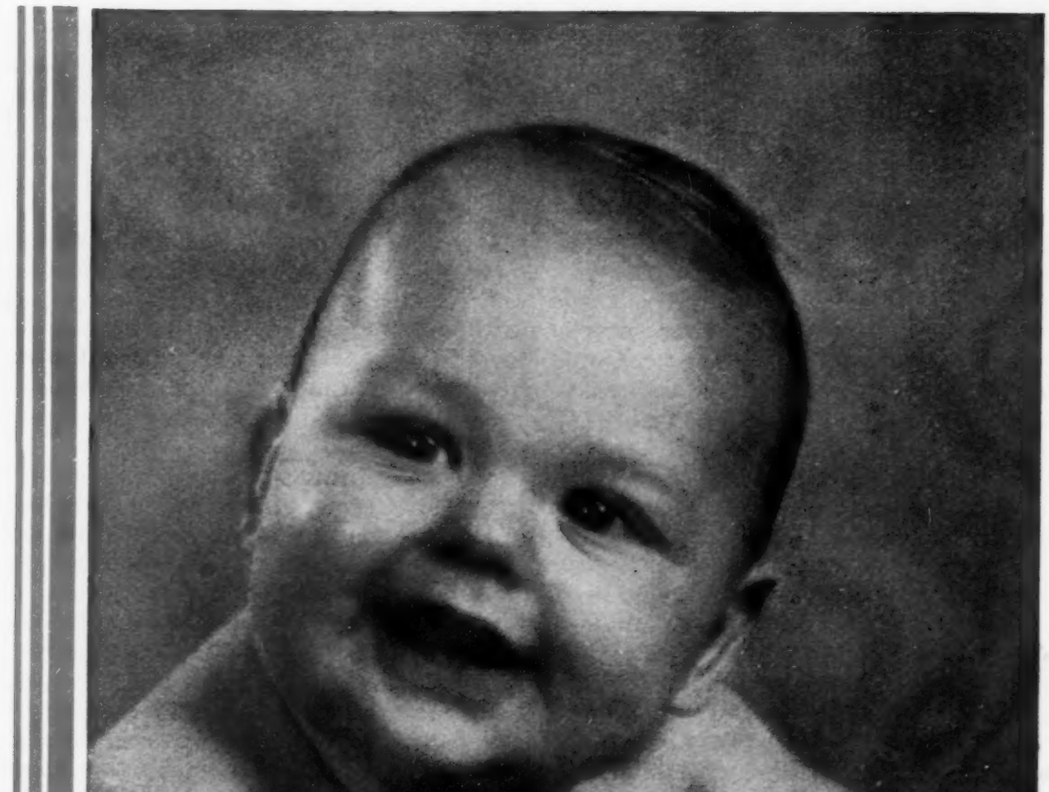
The optic nerve conveys to the brain the images picked up by the retina. It consists of a great number of exceedingly fine nerve threads joined to make a stout cord about 1/16 inch thick. It starts at the disk back in the eyeball, goes through a canal made by the coats of the eye shell, continues in the orbit and then leaves it to enter the brain cavity.

So from each orbit, the right and the left, the optic nerve starts out to reach the brain not only on its own side but on the other side as well. To do that, the nerves first cross, merging into one at the optic chiasm. When they leave that crossing, they are called tracts. Each tract is now composed of fibers from both optic nerves, right and left. In this manner each eye is represented in both sides of the brain.

On the way through the brain, other important routings and connections are made until the nerve fibers reach what is known as the visual area of the brain. From there the nerves controlling eye movements and other necessary adjustments start out on their way back to the eye. By this means it is possible for the two eyes to act coordinately and for the two separate images of the same object as seen by the eyes to fuse into one image as seen by the brain.

[NOTE.—In the September HYGEIA, Dr. Cohen will discuss "The Function of Sight."]

TEETHING



Ewing Galloway

By ABRAHAM TOW

THE ERUPTION of teeth is an important period in the life of the infant. It has been said that teething is a physiologic process and that as such it should be a normal one unaccompanied by disturbance. This opinion was formerly voiced by numerous physicians the world over. In recent years, however, this belief has been seriously challenged; and today a great number of doctors believe that teething may be accompanied by, or be responsible for, disturbances of various kinds that upset the normal routine of the baby.

Teething should not be looked on as a diagnosis for an abnormal condition unless every-

thing else has been excluded. Certainly it is one which a mother should never make on her own responsibility as an explanation for deviations from the normal that are occurring in her infant. If the baby is restless, refuses to eat, has an elevated temperature and shows unmistakable evidences of swollen gums, he may be teething, but he may also have other things the matter with him. A disturbance much more serious may be fomenting, and the responsibility for eliminating these other causative factors should rest with the physician.

Failure to eat is a common accompaniment of swollen gums. Your child knows best what he wants, and this is certainly no time to insist that he finish the meal apportioned to him. If you press him to eat, he may vomit. The amount of food that infants consume at this time may appear to be exceedingly small; but if they are hungry, they will eat. The quantity consumed varies greatly. Occasionally they will eat everything set before them; but more often they will take only an ounce or two of the formula or a spoonful of the cereal, vegetables or egg, and no amount of cajoling will make them take more. This variation in the quantity of food consumed may continue for days. It is surprising on how little the baby will exist. As long as he does not lose weight, there is no cause for alarm.

Vomiting is often a disturbance that accompanies dentition. Pressure brought to bear to make your baby eat will aggravate this symptom. There is an old principle that a little cajoling may be necessary to make a child eat, but that force should never be used. Saliva is secreted in large amounts, and often this saliva drops back into the pharynx and may cause vomiting or produce a cough.

Often the irritation of the gums is accompanied by an irritation of other mucous membranes in the buccal cavity; and swollen tonsils or a congested pharynx frequently accompany teething. A running nose is also a part of this picture. In this case, although teething may have played a rôle in the production of the condition by lowering the patient's resistance or setting up a portal of entry, the diagnosis must properly be called tonsillitis, pharyngitis or coryza. It is interesting to note how often the symptoms subside with the clearing up of the disturbance in the gums.

Loose stools containing mucus are not uncommon during this period. With teething a large amount of saliva is produced, swallowed and passed through the intestinal tract unchanged. For this reason, the stools are loose, contain much mucus and may be increased in number. Boiling the milk may remedy this condition, but the physician should be consulted for the proper treatment.

"Teething rash" is a term loosely used to explain the occurrence of a rash which appears over the face or body at this time. Although teething in itself may not be responsible for the eruption, it certainly seems to play a rôle in its occurrence. It is probable that the irritation of the gums produces a lowering of skin resistance; and with this lowering of resistance the skin eruption, which ordinarily would not appear, makes itself evident.

No mother should accept teething as an excuse for an unexplained high temperature unless the baby has been thoroughly examined by a physician. There is no doubt in my mind that this condition is responsible for increased temperature in infants, but I feel that this explanation should never be offered unless a thorough physical examination fails to reveal any other abnormalities.

The first tooth usually appears during the sixth month. Teeth have appeared as early as the third month, but sometimes they do not appear until the end of the first year. Parents must realize that the figures appearing in books on this subject have been compiled from thousands of cases and that an average has been struck. They should not worry if the baby is late in teething. Assuming that the feeding and care are normal and that there are no abnormalities present, late dentition is of no significance.

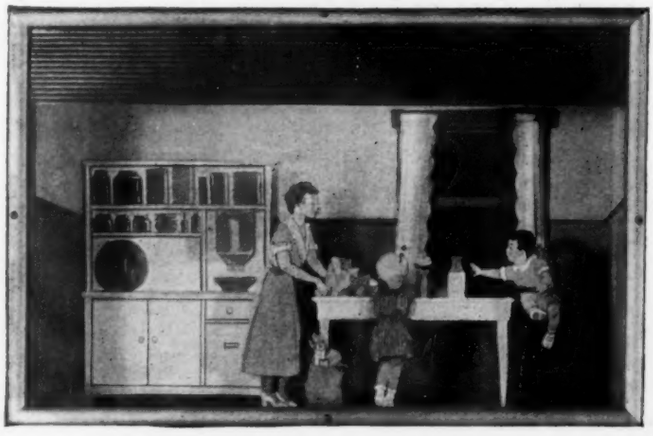
Although the central incisors usually appear first, the canine or lateral incisors may be the first to erupt, and this does not mean that the child is abnormal. Anxious parents are often troubled because baby's teeth are not appearing in the normal order. More often they are worried because of late dentition, and it is usually difficult to convince doting Mr. Jones that there is nothing the matter with John, even though he is 9 months old and as yet has no sign of a tooth. Mr. Smith, on the other hand, may have a 6 month old daughter with three teeth, and he is not the least bashful in telling everybody that a fourth is coming through.

Somehow I feel that the modern baby begins to acquire teeth earlier than his mother or father did when they were infants. I have seen babies as young as 2 months of age who are salivating and who refuse their food and keep biting their fingers. It is hard to make an anxious mother believe that her offspring is teething. "Oh not as young as that, Doctor," she remonstrates. "That's not possible."

But there it is, and we cannot gainsay facts. I believe that the early use of viosterol, cod liver oil and other sources of vitamin D, as preventives of rickets, may have something to do with the earlier appearance of the signs of dentition. These symptoms, however, do not mean an early eruption of a tooth. That may be imminent, or it may be long delayed; for salivation and swollen gums in an irritable infant are not always indications that the eruption of a tooth is near at hand.

Health for the Individual

is portrayed in diorama in ican Medical Association



FOOD AND NUTRITION

Good food at regular intervals is as necessary for the adult as for the child. A diversified diet, containing plenty of milk, vegetables and fruits is usually sufficiently balanced for the person in good health.

INTELLIGENCE IN HEALTH MATTERS

Intelligence in matters of health is essential. Sane thinking will result in a balanced mental attitude; sane living will give vigor and happiness instead of invalidism and woe to many individuals of advancing age.

EXERCISE AND REST

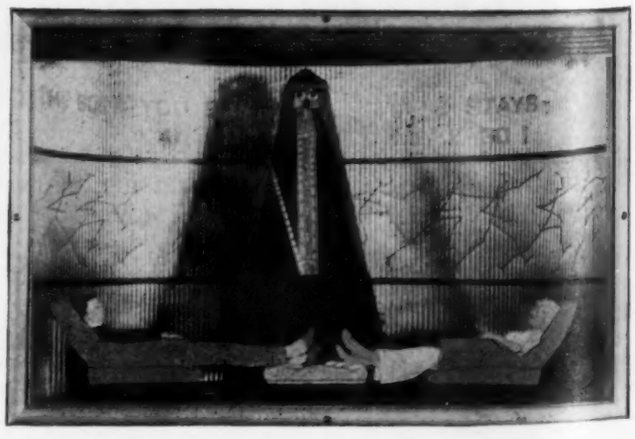
Exercise and recreation, rest and relaxation must be suited to each individual. Exercise is a necessary factor in good health but not a panacea for all possible ills, and even the very busy person should find time for considerable rest and relaxation.

MODERATION IN ALL THINGS

Moderation and temperance in all things—in food, in exercise, in recreation and in other activities—is advisable. Excesses of one kind or another put sudden and unwarranted strain on the human machine.

AVOIDANCE OF INFECTION

The old theory of "letting the children get the measles to have it over with" has long been abandoned. Children as well as adults can prevent many cases of infection with communicable diseases by a little attention to precautions.



and the Community

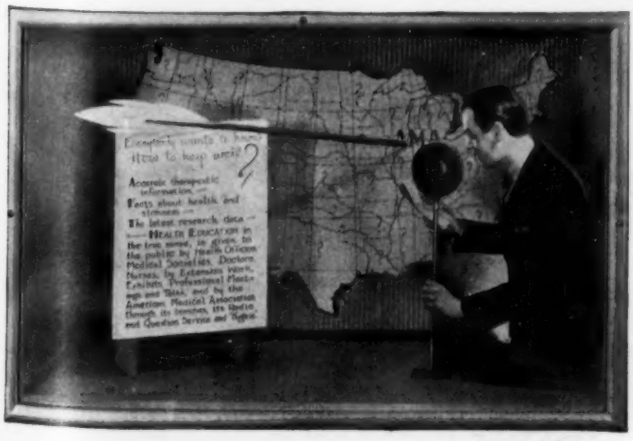
the exhibit of the Amer-
at A Century of Progress

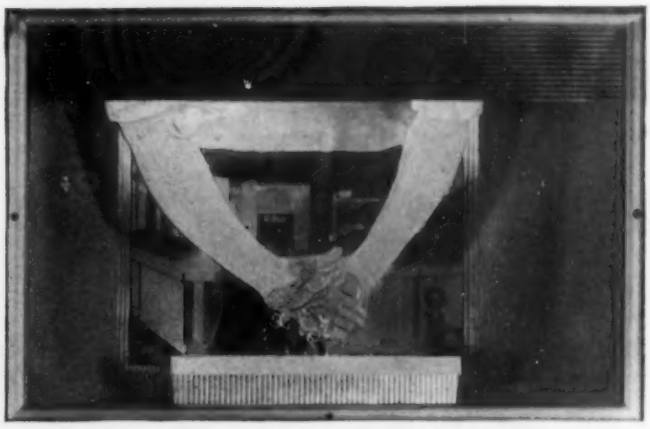
PURE MILK SUPPLY

Milk produced under sanitary conditions and then properly pasteurized is the requirement of most cities. Supervision of the milk supply calls for a personnel especially trained in the work.

NUISANCE CONTROL

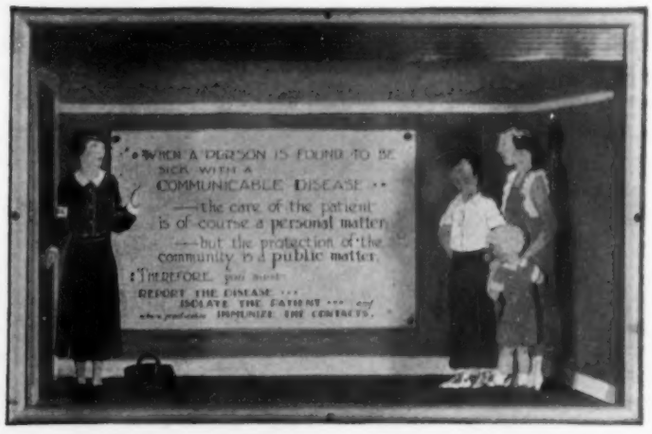
Dead animals and accumulations of garbage are not necessarily hazards to health. However, their presence in streets and alleys is an evidence of slackness which no health officer will tolerate.





FOOD HANDLERS AND DISEASE

Food handlers in restaurants, bakeries and similar establishments sometimes spread communicable diseases. Scrupulously clean hands tend to eliminate this danger, but "carriers" of typhoid, diphtheria and other diseases must be removed.


WHEN A PERSON IS FOUND TO BE SICK WITH A COMMUNICABLE DISEASE ••
—the care of the patient is of course a personal matter
—but the protection of the community is a public matter.
THEREFORE, you must:
REPORT THE DISEASE ...
ISOLATE THE PATIENT ... and
IMMUNIZE THE CONTACTS.

COMMUNICABLE DISEASE CONTROL

While quarantine is necessary for cases of communicable diseases that already exist, modern communicable disease control calls for the prevention of contagion. This is accomplished by immunization, laboratory tests and the services of an expert epidemiologist.

HEALTH EDUCATION AND HEALTH SERVICE

To keep the public informed of advances in health knowledge and to warn against dangers, the health worker must devote considerable time to health education of adults. In many communities there are coordinated health agencies to prevent duplications and gaps in the health service of the community.

SWEPT by a Cool Breeze

Who ever said you had to eat three meals a day around a dining room table? Aren't there gardens and porches? Don't people have laps?

Melba Acheson *Describes the Joys of Vacationing at Home*

VACATIONS have had a way of dwindling to a week or ten days these past few years. That, for most of us, leaves a greater share of a hot sticky summer to dispose of at home.

The clever women who have seen to it that their families' spirits were kept high, their stomachs well filled and their backs skilfully covered during the dark green depression are not running up any white flags yet. There will be a way, and they will find it, to make summer at home as gala as summer at the beach.

To begin with, something must be done about the house. Taupe mohair, thick warm-colored rugs, rich drapes, beloved bric-a-brac and hand woven table scarfs are elegant in winter, but they do nothing to give a "vacationing-at-home-this-summer" air.

With the cooperation of a family that has been told all about this grand vacation at home, it takes no more than a twinkling to transform the winter palace into a cool vista, even more inviting than a crowded beach. It's as much fun as "opening the cottage."

The very first thing, up come the rugs, leaving a shining expanse of the polished floor, relieved here and there by well placed, small rugs. Down come the heavy drapes and the glass curtains. In their place are hung gay cretonne curtains, cool loveliness in greens, blues and violets, put up on rings so that they may be pulled back at night to let cool puffs of wind blow through the house and pulled across the windows during the day to keep out the hot rays of the sun.

Pieces of bric-a-brac will be few and far between when you are through. There may be

a vase or two, on starched crochet string mats which cooly displace the warm hand-woven prize possessions of winter, a few well chosen pictures and perhaps a linen hanging. There will be many polished bare surfaces of floor and furniture, because they look and feel so refreshing.

There is still the mohair; and slip-covers, of course, are the answer to this problem. They are not difficult to make, nor does it cost much to have them made, yet they make all the difference in the world in summer comfort and peace of mind.

For a complete change of scene—and I defy any one to find a woman who is not in her element when she is changing something—put new pictures in the picture frames. There have lived clever souls who have not disdained the lovely landscapes and marines they have discovered in favorite magazines. They are fun for a change, even though they may not equal in quality the rich pictures they temporarily displace. It is a great indoor sport, this collecting of pictures to try out in various frames. A few well chosen pictures, augmented daily by fresh garden flowers, are enough decoration for the hot days when spaciousness and lack of detail make for coolness.

Place-mats instead of damask on the dining table look cool and save labor.

Sheets used for spreads make snowy expanses of the beds; they also save effort.

When the sun is shut out early in the morning by drawn curtains, it not only looks cool, but it is cooler in the house. At night the curtains may be drawn back to let in all the fresh night breeze.

All this—and the thing nearest the heart of the housewife has not yet been mentioned. The meals!

Lunches aren't such browbeating problems. The house is still a little cool from the captured night air; the family retains a little of it, too. Quite a pleasant atmosphere may be achieved around a barish table when plenty of fresh fruits and vegetables lend color and crispness to the simple meal.

But it's the dinners that drive the lady of the house to distraction. The afternoon sun has blistered every nook and cranny of the house. The very thought of the family gathering around the table, wearily trying to make conversation through the heat waves, is enough to give her heat prostration.

But who ever said you had to eat three meals a day around a dining room table, anyway? Aren't there gardens and porches? Don't people have laps? And did you know that, even on the hottest days, coolness begins to seep up through the ground, freshening the grass and giving forth a fresh earthy smell in the garden just as soon as the "sun sinks behind the purple hills?"

The most vacationy thing about this vacation at home should be the variety. The freedom that comes from dinner on the porch or lawn is a welcome change from gathering around a table three times a day. Once tried, it's only one of the things your family will continue to do. Of course you will probably need to set up a card table for the head of the house, who invariably grumbles a little about having no lap. But the children will perch around gaily on the grass, among bushes and trees. Undoubtedly, "eating problems" will be a thing of the past.

Lap dinners always present one problem, that of selecting a meat which can be cut with a fork. With the large selection of first class recipes for this type of meat nowadays, however, such meals are rapidly outgrowing the problem class.

To begin with there are the old standbys such as meat loaf and tomato sauce, creamed meat in timbale cases or on mashed potatoes, individual meat pies, croquettes, ham loaf with horseradish sauce or raisin sauce, chicken à la king or chicken salad.

Horseradish sauce is made by adding 4 tablespoonfuls of grated horseradish and ½ teaspoonful of salt to ½ cupful of heavy cream which has been beaten until stiff.

Fish is also fork food. One clever woman discovered that buying canned salmon, breaking it

Make summer at home as gala as summer at the beach.

gently into large pieces, rolling it in egg and browning it in butter was an inexpensive, easy and nearly odorless way of serving fish. Her family was enthusiastic about it. This is particularly good for localities where it is difficult to get good fresh fish. Salmon or tuna fish salad is also a good way to add sea food to the menu.

Ham, cut into eatable sizes and cooked with escalloped potatoes, is easily prepared and eaten. Ham mousse is a company-coming-to-dinner dish for summer that deserves its good name in society. It's one of those grand dishes that may be prepared in the morning, leaving the hostess fresh as a rose by dinner time.

Ham Mousse

- 1 pint chopped lean ham
- 3 tablespoonfuls butter
- 3 tablespoonfuls flour
- 2 cupfuls milk
- ½ teaspoonful salt
- ⅛ teaspoonful white pepper
- ⅛ teaspoonful paprika
- 1 tablespoonful granulated gelatin
- 2 tablespoonfuls cold milk
- 1 cupful stiffly whipped cream

Make a white sauce by cooking to a paste the butter and flour and then adding the milk gradually and simmering it until thick. Add the seasoning. Soften the gelatin in the cold milk and let the mixture simmer until the gelatin is dissolved. Now add the ham, and set the mixture aside to cool. Before the mixture begins to stiffen, fold in the whipped cream, and pour into a wet mold. When thoroughly set, the mousse may be turned out and garnished. Chicken or fish may also be made into a mousse.

Food eaten outdoors has a much better flavor than that eaten inside on a hot night. For that reason it's a good time to serve your family liver loaf if they have a tendency to put thumbs down on liver. This recipe, a favorite among the children at a midwestern nursery school, really deserves a high place in the affections of the family, because it is good.

Liver Loaf

- 1 pound liver (young beef liver)
- 1 cupful bread crumbs
- 1 egg
- ¼ cupful stock or water
- ½ cupful milk (scant)
- 1 tablespoonful fat
- ¾ teaspoonful salt
- ½ teaspoonful chopped onion

Wipe the liver, cut it into slices and run it through the fine mincer of the food chopper. Add the crumbs, moistened in the beaten egg and liquid; add fat and seasonings. Beat together well; pour the mixture into a shallow greased baking dish, set in pan of hot water. Bake one and one-half hours at a low temperature, 325 F.

Meats cooked with spaghetti or eggs scrambled with chopped bacon and onion added are good for a change.

Spaghetti with chicken, prepared by the following recipe, is delicious and might well attend a company outdoor dinner.

Spaghetti with Chicken

(Recipe serves ten)

- 2¾ cupfuls uncooked spaghetti
- 5 quarts chicken stock
- ½ cupful chicken fat (scant)
- ½ teaspoonful celery salt
- 1 tablespoonful chopped onion
- 1 teaspoonful salt
- 2¼ cupfuls chicken meat, cooked and cubed
- 1½ cupful cheese sauce (white sauce to which grated cheese has been added)

Cook the spaghetti in the chicken stock, which has had added to it the salt, celery salt, chicken fat and onion. When the spaghetti is tender, add the cubed chicken and put into baking dishes. Over this spread the cheese sauce, cover with buttered crumbs, and bake until the crumbs brown.

Potatoes that go with outdoor meals offer a problem no different from indoor meals. Potato chips make a welcome variation with absolutely no labor, if they are purchased. Pittsburg potatoes are prepared by boiling sliced potatoes until they are partially tender, draining and covering them with a white sauce to which seasonings and grated cheese have been added and then baking them in a slow oven until browned on top.

Baked potatoes on the half shell are a good company dish for outdoor meals since they are easily eaten and claim a somewhat "partified" air. A convenient feature is that they may be baked in the morning, after which the insides may be scooped out, mashed, seasoned and returned to the shell; the potatoes may then be set aside until evening when they can be reheated satisfactorily in the oven.

In preparing other foods for the plate dinner you will want those that are not too liquid. The best vegetables for this purpose are those that are buttered, or creamed with a not-too-thin cream sauce or with other sauces that are firm enough so that they will not spread under all the other foods.

A crisp green salad, hot rolls, jelly or jam, and a beverage complete the main course satisfactorily. Iced tea, of course, is popular for adults; but chocolate milk might well be as popular with the younger members of the family, as an occasional change from plain milk. It is made by stirring about 2 tablespoonfuls of chocolate sirup into a glass of milk and adding only enough cracked ice to make the drink sound tinkly.

One family that is addicted to outdoor eating likes to have all the plates served with the food and placed on the kitchen table, with necessary silver laid out on a paper napkin beside each plate. The beverage, too, is ready. Each member of the family takes his own plate, goes outdoors and selects his favorite eating place. A tray, on which are placed additional rolls, butter and jelly, is put on a rustic table in the yard and covered with a cloth. A platter containing "seconds" and a pitcher of water are also on the table. Sometimes the dessert is placed on the table, and sometimes the children of the family take the dinner plates in and bring out the dessert, which is left ready to serve in the refrigerator or on the kitchen table.

Besides being grand family affairs, outdoor meals make entertaining really pleasant during the summer both to guests and to hosts. Good food, the appetite that comes from being outdoors in the cool of dusk, and the informality all combine to make pleasant parties.

OPHELIA, CLARA and FANNY

More Truth than Fable

By W. W. BAUER

THERE WERE Three of them, and all were Overweight. Ophelia was obese, Clara was corpulent, and Fanny was fat. And they were all determined to Do Something About It. Being bright girls, they did not have their Fat in their heads; that is, one of them didn't. The other two had enough there to choose all the Ways of reducing except the Right One. They did not know that there is one Safe and Sane way to take off Weight; so each decided to use her own Judgment. This is how it worked out.

Obese Ophelia was the most overweight of the Crowd, and she made up her mind, all by Herself, that the other Girls were not going to Beat Her To It. So she went to see her Druggist and made him swear that if the Other girls asked him about her when they bought their Cosmetics and Electric Alarm Clocks and Bathing Caps and other Drug Store Specialties from him, he would not breathe a Word of what she told him. Ophelia was a good customer, so he was ready enough to promise; and then she told him about her Determination to Take off Weight. Right away he told her that he had the very Thing for her and brought out a little Box of tablets, price One Dollar.

Inside the Box there was a circular with a Picture of a very nice looking Lady without any Clothes on, and there was a light shining behind her so that her Figure was outlined very definitely. She was not obese. She was not the least little bit obese. In fact, she was charming. Well, so Ophelia, of course, bought the Box, because she wished also to look Charming, although naturally she would wear more Clothes. Not many more. She would wear a Bathing Suit.

She began to take the little tablets, and she did not say A word to the Other girls. Not one Word. She lost Weight, too. Not just at first, though; so she looked at the Circular again to be sure that she remembered what it said about Dieting. Sure enough, it said that no Dieting was necessary. Ophelia was a Girl who liked her Food, so she felt very much Cheered Up and ate her Luncheon with enthusiasm. She started out with a big bowl of Creamed Corn Soup and quite a few stuffed Olives on the Side. She had some crackers with plenty of Butter to go with the Soup, of course. Pork and Apple Sauce came next, with Creamed Potatoes, Buttered Peas, Hot Rolls and lots of Butter, also some salad with Thousand Island Dressing. She had a piece of Devil's Food cake with Fudge Frosting topped with Whipped Cream for Dessert, and Coffee with rich Cream. As

She made him Swear that he would not breathe a Word.

she paid her Check, she saw some Nut Pralines and had one of those, too. In the afternoon, the office being closed on Saturdays, she went to a Matinee, fortified with a Box of Chocolate Creams. Ophelia had a Swell time.

After a couple of weeks she did begin to lose Weight. It seemed to her that she lost it too fast. Of course, she had been Forty pounds overweight and could afford to lose Some. But she didn't seem to feel Right. She was nervous much of the Time, and there wasn't any special Reason why she should be. Also she was hungrier than ever; and the more she ate, the faster she lost Weight and the worse she felt. There was a peculiar Expression around her eyes. When she had lost Fifty pounds and looked so bad that the other Two Girls began to worry about Her, she finally got scared. She didn't say a Word to Clara and Fanny, whom she had begun to Avoid; but one evening she decided she would go to see her Doctor. She went, all by Herself.

In the meantime, Clara the Corpulent had ideas of her own about Reducing. Clara read Books. She had read more than One Book. People who wrote books knew What they were Talking About, so Clara went and got herself a Book in the Book Store. The title was "Dieting vs. Die-Eating." It was by a Famous Professor who had a big shock of hair and who had his Picture in the Front of the book wearing a loin Cloth. He had Ideas about reducing. The way to do it was to eat Cooling Foods and not Heating Foods. If you kept your System full of Cooling Foods, you would not get Fat; but if you ate Heating Foods, you would simply Bulge until you Burst. So said the Professor. Clara read his Book, and she found out a lot of things. The other Two Girls made fun of her when she came to Lunch, until she would not eat with them any More.

The cooling Foods that the professor recommended could not be Purchased anywhere except from him. That made it inconvenient; so Clara began to carry her Lunch to the Office. The cooling foods came in Packages, with a Picture of the Professor on each one. It was convenient to carry them but not so convenient to eat them. A horse or maybe a cow would have had a Better Meal out of them, because Horses and Cows are used to Alfalfa, and Girls aren't. The fruit wasn't so bad. The hardest Part was to pass up the Steak and Onions and French Fried Potatoes and roast meats and weiners and Beer. Those were all Heating Foods. All the foods you liked were Heating Foods. It was discouraging, especially if a Girl never had been noted for Will Power. Clara remembered her Mother had always said she was Easily Led, even as a Child. So Clara Cheated. She read the Professor's book to give her Courage; but she sneaked into Restaurants at Night, like a Criminal, and ate Gorgeous Meals, and then went home and tried not to Lick her Lips when anybody was looking. She fooled everybody except Herself and the bathroom Scale.

Then one Day she saw another Book. This was by another Professor; and he had Ideas about diet, too, but not the Same Ideas as the other Professor. This one said you must Eat nothing but Fruit Juice, if you call that Eating, for Nine Days. But it wasn't as Simple as that. This Professor believed that Three was a Magic Number, and he Said that everything must be Done in Multiples of Three. That made it very Interesting. You started out, that is, Clara did, on a Three Day Program. In those Three Days she was allowed Three kinds of Fruit, orange, lemon and grapefruit. She was allowed three of each every day; in fact, she Had to Eat three of each every Day. Not only that, but they were to be eaten three different ways every Day,

Clara the Corpulent had ideas of her own about Reducing. Clara read Books.

sliced, whole or juiced. And that was All she had to Eat. Every Bit. Three Days was a long time passing, but the Scale told a wonderful Story at the End of the time. Three pounds Off, a Pound a Day. Of course she felt Terrible, but then she had Three Days coming during which she could Eat. And did Clara Eat! Just as she was about to Begin the second of the Three Day fasts, the scale told her that she was a pound Heavier than when she started. There were to be Three sets of the Three Day, Three Fruit, Three Way Days; but Clara never got past the Second Night of the Second Series. That night she met a Roasted Chicken with Chestnut Sutffling, and Mashed Potatoes and thick Brown Gravy and Green Apple Pie à la Mode, and she could hardly keep from Kissing the Waiter. Clara lost her Dietetic Virtue.

Clara tried a Couple more schemes for Painless reducing, and Each of them hurt worse than the one before. Besides that, she Didn't lose any weight. She was glad she wasn't losing as Fast as Ophelia, because she and Fanny were worried about Her. What troubled Clara most was that Ophelia was losing too fast and looking simply Awful, and she herself couldn't lose at All. But Fanny! Fanny was almost Catty about what She was doing. She was taking off Two Pounds a Week, steady as Anything. And not only that, but Fanny was eating Food. That was the Funny Thing about the whole Business. But Fanny wouldn't talk about it, so finally Clara decided that she would go and ask a Doctor some Questions. She didn't know any Doctor, so she tried to remember what Doctor it was that Ophelia said she had had last winter when she had Athlete's foot—though Ophelia had never even carried a Daisy Chain. Clara couldn't think of his name to Save her Life; but she remembered where his Office was, so she took a Chance and went there.

When she opened the Door and walked into his Waiting-Room, there sat Ophelia.

"Oh, h-hello," said Ophelia in a Weak Voice.

"Oh, hello," said Clara in a voice to Match.

Then for a long time they didn't say Anything. Of course that couldn't last. They did keep a kind of a Watchful eye on each other, and they asked about how was Father, and was Mother quite well, and had Uncle Aleck seen enough of the Fair and gone home, and did Aunt Julia still have seven Cats, and a Lot of other Questions that they knew the Answers to, only they had to keep the Other one talking so she wouldn't get too much of a Chance to Think. The only Subject they missed was about taking off Weight.

The Doctor was quite Busy, and they had to wait a fairly long Time. Clara was just about ready to lose her Nerve and go away, when the Door opened and in walked Fanny.

Fanny was looking great. She had on one of those stylish suits that make thin girls look Swell and fat girls look Enormous.

"Hello, girls," she said, brightly.

Fanny was looking great. She had on one of those stylish Suits that make thin girls look Swell and fat girls look Enormous. Ophelia's clothes didn't fit her very well because she was Losing weight so Fast; and Clara had grown so Hungry in between Dieting that she had gained, and her Fall Outfit wasn't exactly Tailored to Measure any more. So naturally Fanny was not Popular with her Friends. Fanny was undeniably Slim. More than that, Fanny sparkled. She radiated Enthusiasm. Fanny was almost offensively Attractive.

There was a long Silence. But at last it had to Come Out. Fanny had stolen a March on her Friends. She had not whispered in the Ear of any Druggist. Neither had she read any Books. There was only one Book in Fanny's program and that wasn't meant for Reading. It did not contain any Ideas. All it contained was Facts. It was a Table of Food Values. Fanny had gone to her Doctor and had had a complete Physical Examination to be Sure that there was nothing wrong with the Works. Then she had been given a Diet containing Food instead of Alfalfa, Grass, Weeds, Chopped Hay and Sawdust. She had not taken any Tablets. She had lost Two Pounds a week as regular as a Clock, and she felt Great. This was her regular visit to the Doctor and probably would be the Last.

Just before the Doctor sent his Secretary to call Ophelia to his private Office, the Girls decided they were still Good Friends in spite of Everything.

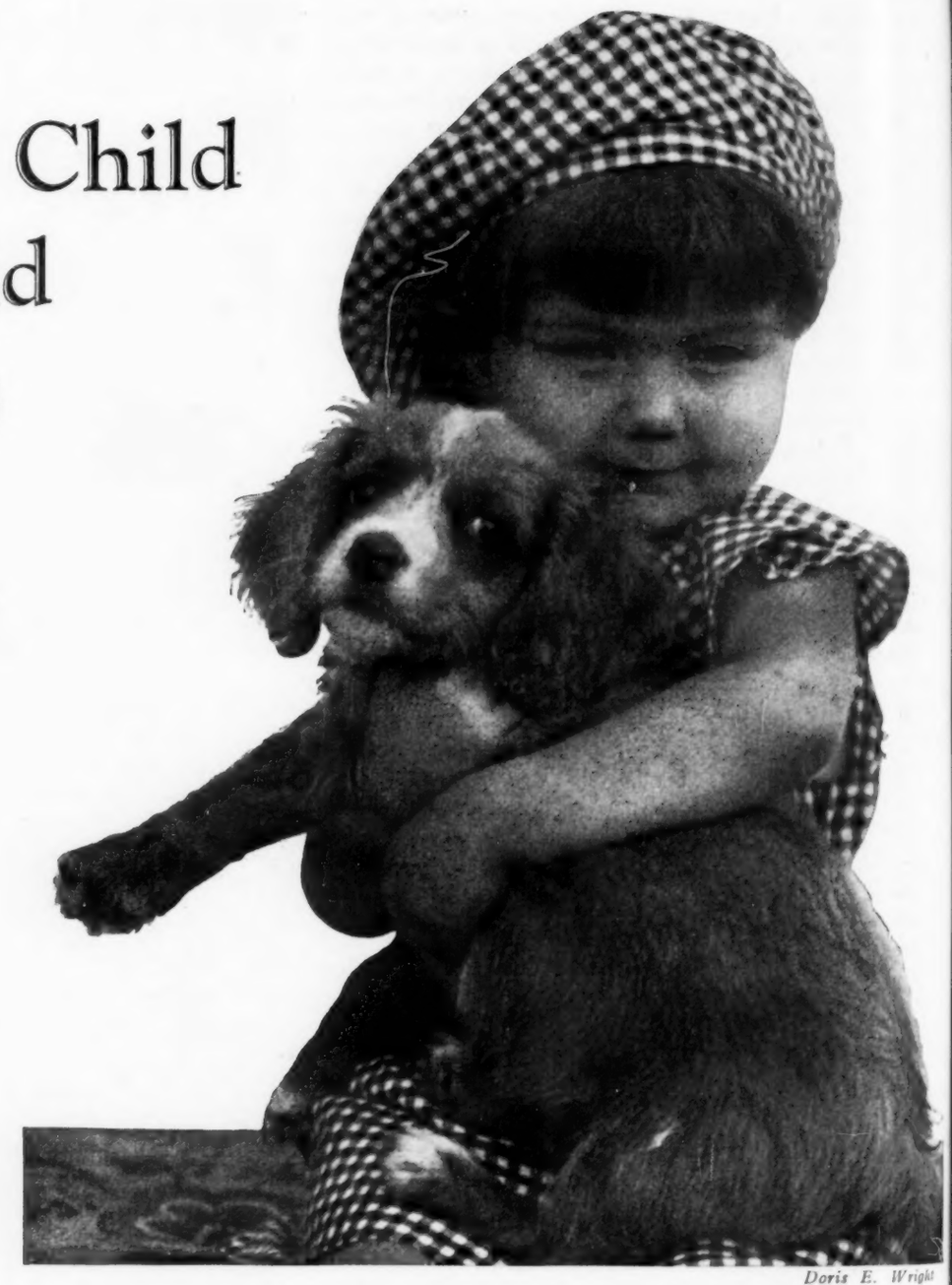
[NOTE.—Another of Dr. Bauer's "fables" will appear in an early issue of HYGEIA.]

MORAL: The Longest Way Around Is the Shortest Way Home.

If Your Child Is Afraid of Dogs

As Told by a Mother to

ELLEN GRINDELL



Doris E. Wright

WHEN DAVID was 4 years old, we first noticed his intense fear of dogs. He was, on the whole, a fearless little boy, undaunted by high places and constantly exploring new channels and new objects. He was always ready to go out in the yard alone to play, and his sturdy independent little soul rather resented parental supervision. Then suddenly one day he flatly refused to go out by himself to play. He stayed close to my side; and when he was left alone in the yard, he invented a thousand excuses for coming back into the house.

Knowing my son, I realized at once that there was something wrong, and questioning finally brought the confession that there was a big dog living next door that always came into our yard. I was about to laugh away his misgivings until I looked at his face; and from his expression I realized that it was truly a real fear that held David in its grip. The child was by no means a coward, and I knew that it would be wrong to use shame as a weapon for destroying the fear that he felt.

For a while we let the matter rest; but it became obvious that he was not outgrowing his fear and that it was a really deep-rooted condition. A dog passing on the street terrified him, and he stayed more and more at my side rather than risk a chance of encountering one of the neighbors' dogs. I remembered adults of my acquaintance who had never overcome a similar fear and resolved that David should not grow up to be one of them. Moreover the situation was not one to be dismissed lightly; it was strik-

ing at the very roots of the child's self confidence and independence, and it became more and more apparent that some cure must be found. The first possibility that I considered was that of buying a dog and having David become accustomed to it, but that plan I dismissed immediately. The child's home was his only refuge from the object of his fears; and by introducing that object into his very home I would deprive him of all security, so that there would be no place at all where he would feel safe. Moreover, knowing dogs, I realized that a dog senses immediately when a person is afraid of him, and it is that person of all people whom he will bite.

When there have been problems attached to bringing up my three children, I have always sought the aid of a psychiatrist, a sort of professional mother who with her experience with the problems of children is able to solve the questions that are beyond my depth. So, finding myself helpless before David's fear of dogs, I went to her and she took the child in hand.

Her first advice was emphatically against forcing the issue, and she warned me against either buying a dog or forcing David to play with dogs.

"Just imagine how you would feel if you were thrust into a lion's cage," she remonstrated. "David's fear of a dog is just as real to him as an adult person's fear of a lion. Probably at some time in his life he was frightened by a dog without your knowledge, and we must begin at the beginning and teach him to associate the animal with desirable qualities."

Our first step, therefore, was to introduce David merely to an imaginative acquaintance with the canine world. I dug up all the stories I could find about brave dogs, about dogs that had saved children's lives and about children whose dogs were their best pals. I built up for him an entire world of dogs, so that before long, in theory although not yet in reality, he loved the animals. I searched the long list of my acquaintances who were mothers until I found two who had boys of David's age who owned dogs. These mothers cooperated with me by sending snapshots of their children with their dogs, which I showed to David casually and with no spoken reference to the dogs in the pictures. This was important, however, because it showed him that the stories I had read him were not limited to the world of make-believe but were true of real live boys like himself.

The next step was the purchase of a big wooly toy dog, realistic in appearance but, of course, quite motionless. Together David and I gave him a name, built him a kennel and acted out in play all the dog stories with which he was acquainted. Safe in the knowledge that the dog was stuffed with sawdust, David made believe that he was real; he pretended to feed him, and he would drag him around at the end of a leash. The toy dog became his most beloved companion, and I waited patiently for the time when David would want a livelier one.

Inevitably the time came. As a little girl wishes that her doll were a real baby, David began to wish that his dog could make some response to his overtures and that the daily ritual of feeding him and airing him would be more than pretense. Feeling that the time was not yet ripe for him to have a dog in his own home, I took him around to the houses of dog owners of my acquaintance, careful always to be sure that the dogs were not wild, playful puppies but quiet, pompous animals who would not frighten him with any sudden playful attack. David always stayed at a respectful distance from these dogs; but the old terror was gone, and little by little he grew accustomed to their presence. Finally he boldly walked up to them and patted their heads, although he always did it with an eye over his shoulder to make sure that I was close at hand to rescue him in case of any unforseen danger. I encouraged him in his new found bravery, never referring to his fear as a foolish or cowardly thing since it was his self confidence that I wished to restore.

And finally, patience was rewarded. One morning David was pulling his toy dog about when suddenly he gave the leash an impatient jerk. "He never does anything," he fretted. "I wish he was real so's he'd walk when I wanted him to."

Quietly I suggested that some one I knew had just told me of a dog he wanted to give away. "He isn't a very big dog," I said, "and I don't imagine he's much of a fighter; but his mother is dead, and he needs some one to take care of him."

David took it all in, and for a while neither of us said anything. I pretended to have forgotten the subject altogether while David sat there deep in 4 year old thought. Then at last came the demand I had been waiting for: "Mother, do you s'pose that we might have that dog?"

I then set out to find a dog that would answer to the description I had given. He was not hard to find—a soft, furry little animal, hopelessly mongrel but quiet and harmless. David was enchanted. I saw to it that it was he who fed the dog and he who played with him, so that the pup soon learned that David was his master. He would follow eternally at his heels, and David was prouder than he had ever been before in his life. He had no fear at all, for the little pup looked to him for protection.

From that time we had smooth sailing. The little dog proved to be the last step in David's cure. From his confidence in the one dog, he branched out to confidence in all dogs. In fact, if he had his way today, our home would be a veritable menagerie of mongrels of all sizes and shapes.

The large cavity in the last molar precedes an acute abscess. The white area at the apex is a painless "chronic abscess."

ABSCESSED TEETH

By

Robert H. Brotman

X-ray examination of the teeth of a patient suffering from rheumatism revealed that all the teeth had chronic abscesses.

IT MAY BE difficult to imagine a reader becoming absorbed in the subject of dental abscesses. Yet is not this topic more vital than some notorious scandal? Is it not more pleasant than a newspaper description of some gruesome murder? People read with interest about the stone age. They like to know how minerals are mined. Bloody wars are absorbingly interesting. Descriptions of catastrophes are read in every detail. Many persons become engrossed in such matters and in trifling news oddities such as the story of a Chinaman or a Hindu who remained standing on one foot indefinitely. Others peruse the comic sections and scandal sheets. But health knowledge, which is more important to their well being, is frequently neglected. Abscessed teeth, their causes and prevention, may make dull reading matter, but in this age no one should consider himself intelligent or well informed unless he is familiar with health topics.

Abscessed teeth are nearly always the result of neglect. When the mouth is not examined regularly by a competent dentist and the teeth are not treated in time, decay advances to the tooth pulp or "nerve." When this vital part is reached by decay, irritation results and inflammation follows. Toothaches almost invariably accompany an inflamed pulp until it degenerates.

The same thing that happens to meat that remains exposed to torrid summer heat happens to the nerve when a tooth becomes abscessed. The pulp of a tooth is composed of a nerve and accompanying blood vessels. When decay penetrates to this organic matter, the exposed pulp is subjected to mouth temperature, which is about 98.6 F., and it therefore decomposes and putrefies. Under such conditions exposed meat would rot and emit foul odors or gas; the tooth pulp does the same.

This accounts for the layman's expression, "gas pains in a tooth." When a sufferer discovers that cold water relieves his toothache and that heat increases it, he is probably suffering from tooth gas pains. The air in a tire expands from heat, and gas in a tooth does likewise. If there is no outlet for the gas, a pressure is created which results in pain. Cold causes gas to contract and relieves toothaches caused by this condition. Often a dental office is visited by a patient carrying a glass of cracked ice with which he controls his acute ailment until he can be relieved.

When bacteria infest the pulp and decomposition occurs, an abscess develops after an interval of time has elapsed. The root of a tooth is seated in bone, not in gum tissue. Each root is surrounded by a nourishing membrane which acts also as a cushion or shock absorber for the tooth. At the apex of the root the bacteria which infest the pulp also attack the membrane, which becomes inflamed. This does not usually produce pain after the gas pressure has been relieved. Not until an acute infection or abscess develops does pain begin anew. This explains why, after a succession of toothaches, the patient obtains relief for a long period and concludes that his trouble is over. But it is not. It is really only beginning.

Ordinarily, an abscess follows the infection of the root membrane. A dull, continuously throbbing pain manifests itself. This continues and becomes more intense. By the second or third day the swelling may be large enough to render the sufferer unrecognizable. Many dentists refuse to extract teeth in such a condition, and the dangers multiply as the swelling and pain increase.

This briefly describes an acute tooth abscess. However, there are other abscess conditions, and it is always advisable to consult a reputable dentist for the proper treatment. Many persons lose their lives or narrowly escape death because they treat abscessed tooth conditions improperly with home remedies. Frequently heat is applied when ice is required, and vice versa. It is better to be safe than sorry.

Although the reader may have observed many abscessed tooth conditions which have terminated with apparently favorable results, there are many grave cases being cared for at the hospitals because of mistreatment. Bone, soft tissue and systemic infections are common complications, and resultant fatalities are not

unusual. Scars are ordinary sights, and facial deformities are not rare.

Often ugly scars mark a person's features for life because he listened to Grandmother's medical advice. There are as many "doctors" as there are friends, and there are more remedies, but nostrums are dangerous. A dentist would not attempt to make a boiler, and a boilermaker should not attempt to practice dentistry. A disfigured face is only one of the conditions that may result when ill advised or foolish persons try to be doctors.

Cellulitis, osteomyelitis or septicemia may follow an acute tooth abscess. Cellulitis refers to a serious condition wherein the soft structures are dissolved by pus. Osteomyelitis affects the hard structures, or bone, in a similar manner. Septicemia is generally called "blood poisoning" by the layman. The person who takes care of his mouth and goes to the dentist for periodic examinations need never have the slightest fear of contracting any of these ailments from his teeth.

If an acute dental abscess follows an unhampered natural course, without associated complications, the swelling and pain leave, but dangers still remain. The acute abscess becomes chronic. This condition does not give pain, and the patient concludes that the abscess has departed. This is not true, for as long as the tooth remains in the mouth the infection remains with it. The apex of the root becomes a manufacturing plant, and its product is pus. The infection may flare up at any time and become acute. The by-products are toxins and pus, and both are subject to absorption by the blood stream.

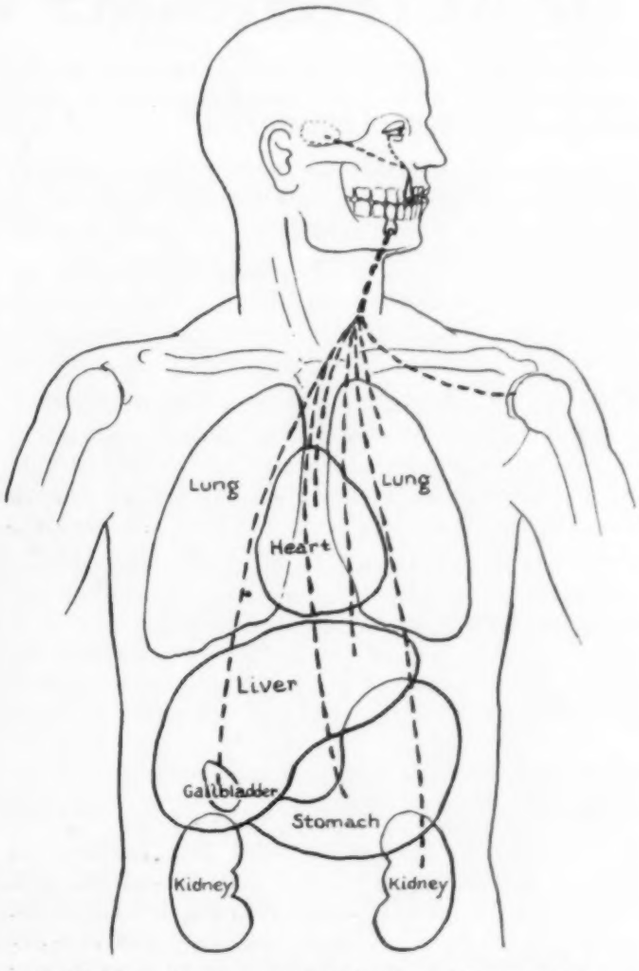
I believe that more general infection is caused by chronic abscessed teeth than by any other dental disorder. A single abscessed tooth often causes arthritis, iritis or any of many disturbances, although a full set of teeth with advanced pyorrhea may not cause any general physical disturbances.

The layman commonly holds a misconception concerning abscessed teeth and their removal. It is generally believed that such teeth should not be extracted. Since the abscess remains as long as the tooth remains in the mouth, what else is there to do? If properly done, the extraction of a tooth in nearly any stage of infection can be accomplished without added dangers. However, the safe and sane plan is to prevent abscesses from forming by receiving regular attention and advice from your dentist.

When an infected tooth remains in the mouth too long, even extraction may be too late to clear up a general infection. The abscessed dental organ may be a primary center for infecting the system, but secondary centers may be established. If, for instance, such a secondary center is established in a joint, and the primary infection, on the tooth, is removed, there is nothing to prevent the secondary center of infection from continuing to generate pus. This pus and its toxins may be absorbed in the blood stream and act like the pus and toxins from an abscessed tooth.

Many persons ask why dead teeth usually become abscessed. The inquiry is justifiable, for the vast majority of pulpless teeth do become infected. According to actual statistics more than 80 per cent of these teeth become abscessed before the expiration of five years. Today the International Dental Federation is offering a prize of $1,000 for research reports for the purpose of establishing a definite treatment for the pulpless tooth.

When the pulp of a tooth has been destroyed and removed, mechanically or otherwise, an opening has been made through which bacteria can enter. Even if germs have not penetrated into the pulp from decay, they may be introduced from the saliva or from various instruments. Every time a temporary filling is removed to treat the root, more opportunity is afforded for infection. The organisms that enter the root canal may not become active at once. They may remain dormant until some future time when conditions favor their growth.



Probably more general infection is caused by chronic abscessed teeth than by any other disorder.

Other patients often ask why a dead tooth turns dark. When a tooth loses its vitality, its normal sheen and luster are lost. Often some blood remains in the tooth after the removal or partial removal of the pulp, causing discoloration by disintegration. Also the drugs and chemicals used in treatment may discolor a tooth. Another cause may be the fact that a large filling, which is always necessary in such teeth, may cause a shadow or create opaqueness.

It is a wise plan to take advantage of modern x-ray developments. Dead teeth should be given an x-ray examination at least twice a year. Although it is true that it is impossible to be 100 per cent perfect in diagnosing from the pictures, nevertheless such diagnosis is reasonably certain. Frequently the x-rays reveal a small fragment of a root remaining, with an abscess larger than the piece itself. There may not be any pain, and the patient may be entirely ignorant of the facts.

Cysts, which are tumor formations enclosing fluids within a sack, may have their origin in the dental abscess. These cysts may grow in size to a point where the jaw actually fractures without causing pain or discomfort during its progress.

"Gum boils" are dangerous. In every case of which I know the so-called gum boil has proved to be a chronic abscess. The little pimple-like formation on the gum near the root is the termination of a fistula or canal which leads from the infection.

Chronic abscesses are detected by use of the x-rays, by transillumination and by clinical signs observed in the mouth. The x-rays are not always a certain indication of an abscess, for often shadows appear on the films for reasons other than pathologic ones; or there may be normal indications from the picture, and yet transillumination will reveal infection.

When a tooth has reached the stage of chronic abscess, it is then more liable to be neglected. It affords no pain even though the condition has become worse. Since the idea that the abscess disappears is erroneous and because the manufacturing plant of pus is continually present, it behooves every one to act rather than to react.

HEALTHGRAMS ✣ from Articles in This Issue

¶Better knowledge of the eye, its structure, its functioning and the care it requires, will safeguard and conserve its usefulness. *See page 692*

¶Teething should not be looked on as a diagnosis for an abnormal condition unless everything else has been excluded. *See page 696*

¶When there have been problems attached to bringing up my three children, I have always sought the aid of a psychiatrist to solve the questions that are beyond my depth. *See page 706*

¶It is certainly not to America's credit that so many of her families will run their automobiles into service stations at regular intervals but will trust to luck when their children's health is concerned. *See page 723*

¶Besides being grand family affairs, outdoor meals make entertaining really pleasant during the summer both to guests and to hosts. *See page 700*

¶It is wise to choose a carbonated beverage in preference to water from an unknown source. *See page 738*

¶It is estimated that within ten years New York State can be rid of diphtheria. *See page 687*

¶Any parent who will take the trouble to extend the school corridors into the street will be serving his children and himself to vital ends. *See page 714*

¶According to actual statistics more than 80 per cent of dead teeth become abscessed before the expiration of five years. *See page 708*

¶Starvation is weakening in any kind of weather, and it is a bad practice to reduce the food taken during hot days to amounts below actual requirements. *See page 689*

¶The nurse will find that much bending over a low bed causes severe backache and unnecessary strain and fatigue; blocks inserted under the posts will raise the patient's bed. *See page 718*

¶A tapeworm of ordinary dimensions is composed of from 1,200 to 1,300 segments or proglottides. *See page 730*

¶Faulty digestion resulting from dietetic errors or other physical causes produces worry as often as worry brings on faulty digestion. *See page 721*

¶Certainly no more time will need to be spent on a well planned health-building program than many a family now gives to frequent colds, headaches, useless friction and other avoidable health liabilities. *See page 734*

¶The joy of living comes to those who possess good character. Closely associated with good character must be health. *See page 726*

¶Grandmother may have led a simple life and had model habits; but her health, if we are to judge by the printed comments of the seventies and eighties, was generally deplorable. *See page 711*

¶It was not until 1840 that a clear conception of infantile paralysis was established, and the first important epidemic in America occurred in Vermont in 1894. *See page 684*

The DECLINE of DECLINES

By Frances B. Williams

"THE GIRLS weren't wild like this when I was a young man. Smoking and drinking and high diving and playing politics and dashing around all hours of the day and night! No wonder so many of them end up as nervous wrecks nowadays! They knew better in my day, thank the Lord. They took decent care of their health so they'd be fit mothers for their children."

This is the typical grandfather's lament. You have heard it, or its variations, voiced a hundred times by old folk looking back longingly to "the days before the world went crazy." Touching as it is, it has one slight fault: it is all wrong. Wrong, that is, about the comparative health of the dashing modern girl and her more placid grandmother. Grandmother may have led a simple life and had model habits; but her health, if we are to judge by the printed comments of the seventies and eighties, was generally deplorable.

Fifty or sixty years ago the widespread female proclivity for constant ills was taken so much as a matter of course that it was used as a clinching argument by those who sought to prove that women were unfit for higher education. Early in the seventies, Dr. Clarke of Harvard published a weighty tome demonstrating conclusively that it was impossible for women to do college work satisfactorily because it was absolutely essential for them to abstain from all exercise, physical and mental, at frequent stated periods.

Even the advocates of colleges for women were forced to admit the foundation for this charge of physical incapacity, but for their purposes they gave it a different interpretation. Thus Dr. Edward Magill, president of Swarthmore, a coeducational college in Pennsylvania, dealt adroitly with the moot question of feminine infirmity, in the course of an address delivered in 1874 before the Pennsylvania State Teachers' Association:

> That the health of the young women of our generation is cause for deep and serious concern, of course, I do not deny. Such denial were indeed folly in face of existing facts. But I do most earnestly and solemnly protest against the far too prevalent practice of ascribing this ill health, and these enfeebled constitutions, to excessive study. Who does not know that, as the rule, in all literary institutions, the hard students and good

"We have only to look at a fashionably dressed woman," said Dr. Mary Hallowell in 1884, "to see how she offends the laws of physics and physiology."

From her very babyhood a woman's life was artificial; there was no carefree romping for the "little ladies" of that day.

scholars are the last whom we expect to find in the infirmary? It is my earnest conviction, the result of many years' experience and careful observation, that no surer remedy for the feeble health of the present generation of young women can be found than opening every possible avenue for their intellectual development.

Nowadays the amazing accuracy of Dr. Magill's prophecy can be realized; for girls and women leap eagerly into every new field of activity that is opened to them, barred frequently by masculine prejudice but rarely by talk of physical inadequacy.

Commentators on women's health during this era show a unanimity as convincing as it is tiresome. One writer of the period declares:

If we compare the condition of women of refined society, where we rarely find one who does not suffer from headache, backache, pain or discomfort of some kind, with that of the working peasants of the same latitude, and the women of savage nations where they compete with men in strength and endurance, we can with difficulty believe that they sprang from the same parent stem and originally possessed the same physical capacities.

What of the descendants of these "women of refined society?" Are they nursing headaches, backaches and discomforts inherited from Grandmother? Not if one is to judge from the society, sporting and rotogravure sections of the newspapers which chronicle their activities in horse shows, golf tournaments and aviation. The "deep and serious concern" for their health, which agitated the thinkers of an earlier day, exists no more, despite Grandfather's headshakings about cocktails and cigarets and modern feminine capers in general.

To what cause did the medical authorities of the last century attribute the regrettably prevalent physical frailty among women? Did they accept it as an unavoidable dispensation of Providence that fair damsels by the dozen should sink gracefully and romantically into lingering declines?

Certainly Dr. Mary Hallowell, one of the pioneer women physicians of Philadelphia, did not. Speaking in 1884 at a meeting of the Somerville Literary Society, an early specimen of the genus woman's club, she attacked the subject vigorously, asserting that 90 per cent of the diseases peculiar to women had their origin in an unhygienic dress. In no uncertain terms she stated the case against the then modern woman:

We have only to look at a fashionably dressed woman to see how she offends the laws of physics and physiology. Nature says that the feet should rest firmly and flatly upon the ground. Fashion cramps them into ridiculously small shoes, the heels of which are so situated as to make the weakest part of the foot bear all the weight of the body. And again, they are so high as to throw the body out of equilibrium when she walks, and consequently to weaken and impair the spine, and to so change the center of gravity in the body as to produce dislocation of the pelvic viscera.

Since the shoes of the "fashionably dressed woman" have become, if possible, worse rather than better since Dr. Hallowell's day, one cannot but infer that her spine must still be weakened and her pelvic viscera in a sad state of dislocation. But the shoes were only the beginning of the evils from which the lady of the eighties suffered.

She also offends nature in the unequal distribution of her clothing. While the chest and hips are often overloaded, the upper and lower extremities are so thinly clad that their imperfect circulation produces congestion of the trunk and limbs. The long and heavy skirts which drag upon the body and impede locomotion are decidedly unphysiological. Not only is there unnecessary weight, but that weight, instead of being borne by the shoulders, almost invariably gets its support from the hips; thereby crowding the abdominal viscera downward to the pelvic organs, with often times most dire results.

But the article of dress which is the greatest source of the ill health of women is that which causes pressure about the middle of the body, reducing the waist measure from three to fifteen inches. If American women were to squeeze their feet until those members were in Chinese fashion, should place a flat stone on the head until the brains were forced into the back of the neck—we might keep silent; but while they compress that part of the body which contains the organs of vitality—the heart, lungs and stomach—we must continue to resist their madness. In this part of the body is the fountain of life. The slightest pressure reduces the size and activity of that fountain.

Those who have thoughtfully studied the prevailing style of dress as to the waist, will affect no surprise at the cold feet, constipation, weak spine, short breath, palpitation of the heart and congestive headache which are the characteristics of American women.

Little girls of today, sunburned and sturdy, afford a sharp contrast to the girls of Grandmother's day.

Dr. Hallowell's indictment of women's clothing of the eighties is enough to cause any modern girl to breathe a little prayer of thanks that she postponed her birth as long as she did. Certainly nobody could accuse modern fashion designers of having the best interests of women at heart any more than did their predecessors; but at least their current products seem unlikely to be responsible for constipation, weak spine, short breath, palpitation of the heart and congestive headache. Scarlet finger nails and nearly invisible bathing suits may alarm the censors; but whatever their faults, they cannot be held guilty of endangering what the blushing modesty of an earlier generation termed "the fountain of life."

Unhygienic clothing, however, was only one of the factors responsible for women's deplorable physical condition, according to the earnest and farsighted Dr. Hallowell. To her hearers, dressed as they were, presumably, in the fashion of the day, she said:

> Another cause of poor health in women is the neglect of exercise and physical development. In most of our cities today may be found hundreds of women who do not walk a mile a day for weeks together; and many more who have never engaged in any exercise which calls forth the exercise of other muscles than those employed in the quietest locomotion.
>
> Then there is a large number of women [here Dr. Hallowell anticipated the modern psychologists] who have developed nervous and mental diseases from leading aimless lives. It has been said that mental and moral influences are often more powerful in modifying bodily conditions, warding off disease and prolonging life, than all the remedies of the pharmacopoeia and all other hygienic aids. Many women fail to find relief in the office of the physician and gynaecologist, because the physician has neglected in combination with drugs to arouse the mind of the patient by the tonic of new thoughts and a fresh purpose in life, by prescribing employment. Not only occupation, but steadiness of occupation, is an important element of health. Many are the lives almost wrecked from nervous troubles which are restored to usefulness, to comfort and to health by earnest work!

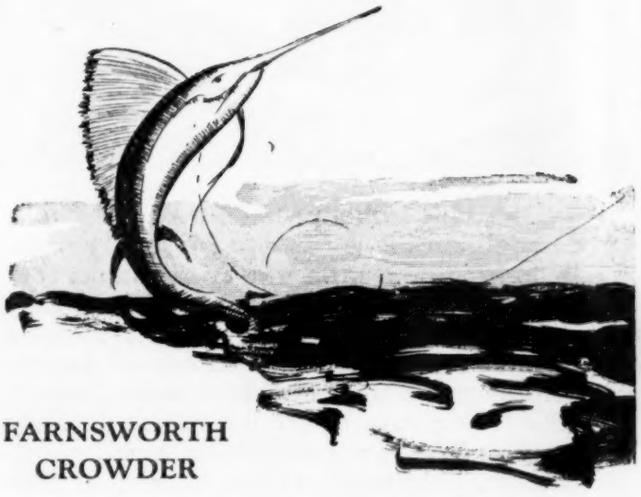
Hundreds of thousands of modern girls who have spent the last several years hunting without result for "steadiness of occupation" will be in fervent agreement with Dr. Hallowell on this point. They know the prescription well enough; the difficulty lies in getting it filled.

But it is the final point in Dr. Hallowell's indictment that makes us most vividly conscious of the vast gulf between her age and ours. Visions of little girls of the nineteen-thirties, sunburned, spinach fed and sturdy, offspring of parents to whom the elaborate precepts of child care are of paramount interest, dance before our eyes as we view this picture of feminine childhood of half a century ago:

> Much of the ill health of American women is established long before they reach the age to be influenced by these conditions. From her very babyhood a woman's life is artificial. Let us imagine a boy and girl about the same age, say six years, under the same home influence. The little girl must not romp through the green fields, fish or wade in the brook during the summer; she will ruin her clothing, become sunburnt and freckled, and as for taking off her shoes and stockings to paddle in the brook: oh, horrors! could any fashionable mother hear of the proposition without a shock to her nerves? But the boy may run bare footed, bare headed, and his clothing is no impediment. In winter, when the nurse takes them out for a walk, we see the boy romping on the sidewalk, catching up a handful of snow and hurling it at one of his little friends while the girl walks demurely along, the very personification of her languid mother. For her there is never any freedom unless she would be ostracized by the votaries of fashion.
>
> Added to this we have the irregularities of eating and sleeping. How many mothers give their children proper food? They generally eat what their parents do, no matter how rich and indigestible it may be, allowed to drink tea and coffee three times a day if they wish. Is it any wonder that their brains are unduly excitable? The boy, by his outdoor romps, acquires an appetite for substantial food, but the girl wants cake, pie, or some other dyspepsia producing article.

After reading this gloomy account, my only wonder is that our mothers and grandmothers survived long enough to become ancestors. Probably Dr. Hallowell exaggerated somewhat, as most crusaders do, but the picture she paints is verified in its details by enough other writers and speakers among her contemporaries to justify us in responding with a gentle "Oh yeah?" to Grandfather the next time he starts boasting about the superior health and common sense of the damsels of his day.

Is Modern Education "*Putting the Cart*



FARNSWORTH CROWDER

Launches an Attack

Against

"BUT DADDY," I heard a little girl protesting at the zoo, "that isn't a ulephant. It can't be."

"Why? Why can't it be an elephant?"

"It isn't red. The ulephant in the animal book . . ."

That child, unwittingly, was voicing a protest that should sound on the conscience of every person concerned with youth. She was saying: "Daddy, I have been fooled."

From nursery to graduate school there is a growing disconnectedness in educational procedure. We show our children plenty of conventionalized red elephants in books; but how often do we take them to the zoo? A great many of my friends exclaim, "Oh, children in this day and age know so much! There's my little girl, only 8, and she calls for everything at the table in French! Think of that!"

Yes, think of it. She calls for *la crême* and for *la céréale*. What does she know about cream and oatmeal? She has perhaps seen pictures of cows, and she has perhaps seen them in pastures as her father shot along a country road in the new super-eight. A cow, taken from school to school in the city of Los Angeles, proved to be a curiosity to scores of children; this, with an agricultural hinterland at the back door! I heard a brilliant 15 year old boy in a California city saying, "Gee, that's funny. You read about fig trees in the Bible, and we eat fresh figs at home, but I don't remember ever seeing a fig tree. Sure funny." Or, to return to our little French scholar eating her oatmeal: Has she ever seen a field of oats? Has she ever seen a field being plowed, disked, raked and planted, or cleared at harvest? Probably not. Even the French words that impress us are things torn up from their home soil. We learn a foreign language in order that we may use it, not that we may display it; the difference is no mere quibble.

Across the street from my home live two boys, aged 10 and 11. Their father does a great deal of business in Mexico; he is in that country perhaps a third of his time. He knows the language and hired a Spanish tutor for his sons. He said later, "I happened home from below the border one afternoon. I peeked in a room, and there sat Alex and Dudley, squirming on their chairs before the tutor. I thought to myself: I didn't see any little Mexican boys learning their language that way, did I?"

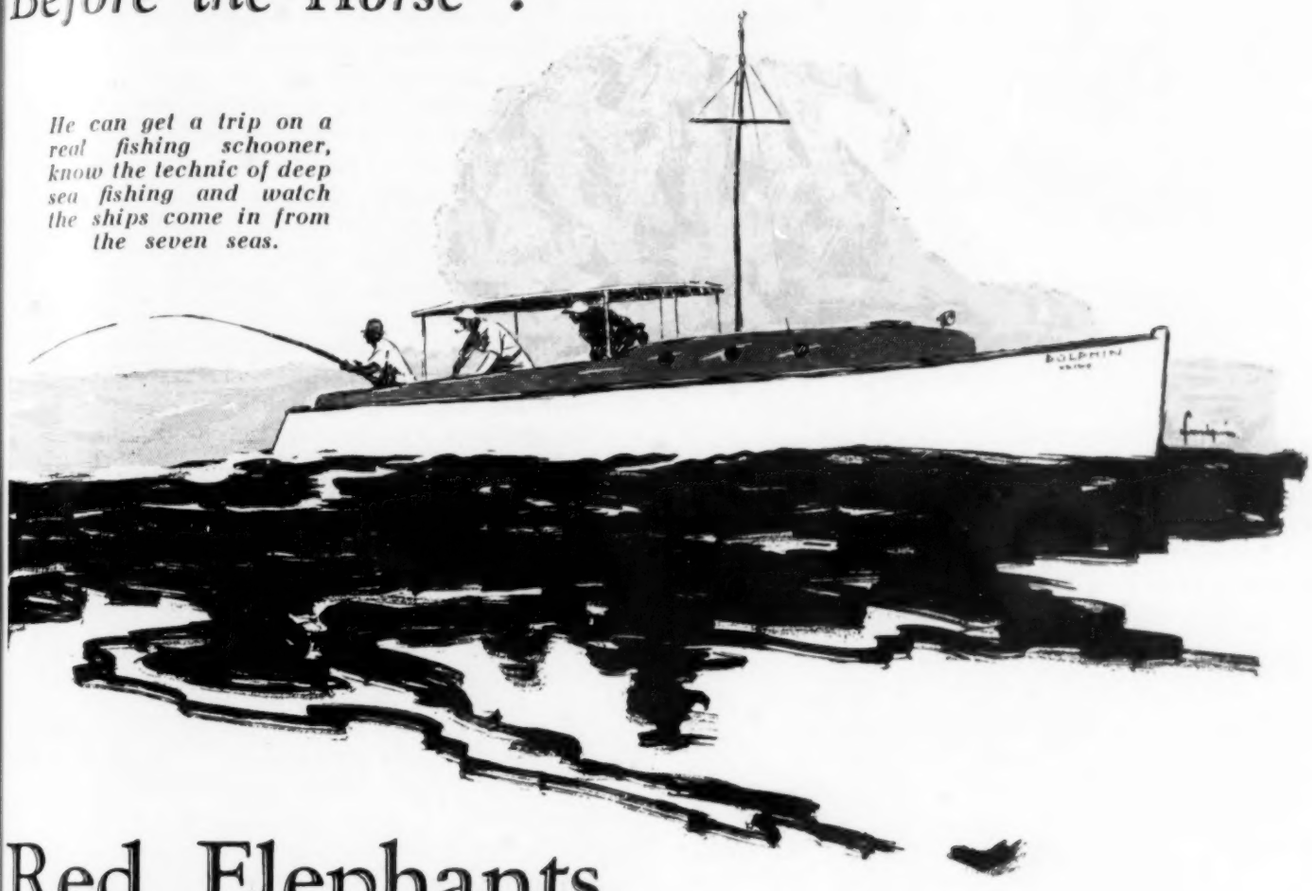
The father and the tutor talked the matter over; they made an excursion to the Mexican quarter of the city, where they discovered two literate and amiable little brownskins. A deal was made with the parents, and now, at least once a week, the Mexican boys come to play with Alex and Dudley. The experiment is more than a linguistic success; not only are the two boys learning the language by using it, but the nationals of two countries are learning to understand and to like one another.

The point I want to make is the one that has been insisted on by agitators from Comenius to John Dewey: that the greatest teacher of all is nature. The great school is not the new million-dollar pile down the street for which we purchase bonds and pay taxes and in which we take so much pride; the great school is beyond. The conventional school plant bears something of the same relation to life and the world that the red "ulephant" in the book bears to the slate colored animal at the zoo.

The state of disconnectedness is largely inevitable, our civilization tending as it does toward the breaking up of life into fragments, toward the isolation of the individual from any contact with life as a unit. Consider the life of your father in his rural or village community; you rather pity his meager school opportunity for he had only the famous trilogy in the little red schoolhouse. But let us not forget, in our self superiority, what he had that our children

Before the Horse"?

He can get a trip on a real fishing schooner, know the technic of deep sea fishing and watch the ships come in from the seven seas.



Red Elephants

do not have, for all their million-dollar plants and "rich" curriculums. He had an intimate first-hand contact with the rigors of wind, rain, sun and cold. The earth was not blanked from under him by cement sidewalks; the sky was not shut out by a steel trussed roof; the majestic rhythm of the seasons was not leveled out by automatically ventilated classrooms and heated sedans. Growing things were not confined to formal parking strips with their "Keep off the grass" signs. He knew hills and brooks and trees. He had intimate contact with a productive and more or less self sufficient domestic economy. He knew how he was fed, clothed and kept warm. He did not set his parents all atwitter by calling for *la céréale,* but he knew where his breakfast came from. He was a participating, vital factor in the home economy. About him lay a primary social community. He knew the neighbors; he heard the gossip, troubles, quarrels; he felt the tensions of debate, and discussion rang forth out of real mouths, not out of radio loud speakers; he was a part of the religious, political, social and domestic life of his world.

For most children all this has passed. The machine has intervened between them and a life that is real and earnest. Domestic economy has disappeared. The factory is far from home and says "No Admittance" on the door. The unit community has gone. Children do not have economic functions to perform; they go to school instead.

As a parent I find this a serious change, this shift from first-hand to second-hand living, this isolation of my children in the schoolhouse cloister for from eight to twenty years, this loss of contact with the world as a going concern, this substitution of picture book animals for real ones. I realize that some schools are aware of all this, for they announce projects and pupil activity and they teach children to build model houses, to model in clay and to raise a row of radishes. This is well and good, but it seems to me a rather pallid kind of substitution.

And so, I asked myself, what can I do about it in the case of my own family? It seemed to me that I could do something, and I felt that the obligation was imperative.

To begin with, I made a deliberate shift in the direction of a self sufficient domestic economy. We moved from the city streets to an improved acre in the country. We raise the vegetables, fruit, berries, nuts and much of the meat for our

own table. My son has an economic function to fulfil. He has duties. He knows something of the hazards, battles and triumphs of working with land. In the neighborhood are poultry and turkey farms, fruit ranches, a dairy, greenhouses, a nursery, a fish hatchery and a canning plant. We have introduced ourselves at all these places, and by this time we are well acquainted. We can see chicks hatching by hundreds in incubators; we can see prize birds being prepared for shows; we can see caponizing operations. At the nursery we watch grafting and hybridizing experiments. We can see all the operations of a modern dairy and creamery. In fact the possible contacts within a mile's radius of our home are amazingly varied and are, I believe, of genuine value.

The mountains rise 2 miles from our back door. Canyons, animal life, forest and flowers are there. Beyond the range is the desert. We can live close to these things, know their names and their ways and moods, know how to live among them and to be on terms with them.

Within an hour by automobile, we can be at the ocean front. For my son there is a great deal more than bathing there. With a father to help "crash the gates," he can get a trip on a real fishing schooner, know the technic of deep sea fishing as practiced on modern, power-driven vessels with their refrigeration equipment. When ashore again he can witness the cleaning and canning of the product. His father can pull strings to get him behind the "Keep Out" signs at the shipyards and the warehouses.

Let the teacher give my son his geography instruction. Then on Saturday afternoons, he and his pals pile in the car with me and we are off to the harbor to see the ships come in from the seven seas. We engage sailors, travelers and laborers in conversation.

Other Saturdays we see steel being made or autos being assembled or spaghetti being strung. Another time, if the docket looks promising, we go to court. Or again we may visit the jail or the newspaper presses or the steam plant that heats a block of skyscrapers. Because I know a doctor, we are permitted to witness some simple operations.

In the evening, we sometimes go to a gymnasium where a boxer is training or to a hall where a politician is making promises or a radical is making threats. We happen to know the manager of a hotel and so get smuggled into the kitchens while a big banquet is being served. We know a construction engineer who invites us out to the camp. We take our tent, camp near the bunk houses, eat in the mess hall with the men and spend a day watching the miracles of engineering as they are being performed.

After you have taken your son and one or two of his pals out to see the marvelous things the world is so full of, you will find, if you have kept your mouth shut and have tried not to be a teacher-preacher, that the usual diversions of leisure seem a little pale to them. The movies take a back seat; second-hand living loses its factitious glamour before what is real. Fact becomes more engaging than fiction. You will find, I think, that the formalized material of the school curriculum will have new vitality for them; they will bring to it experiences of their own against which to check what they are reading and being told. They will have a more authentic orientation with respect to countless elements in the environment. You may find a type of enthusiasm that is something of a novelty in our spoon-fed youth; you may find them reaching out for a wider horizon, toward more catholic interests. You will find them more tolerant but more intelligently critical. They will be less likely to have their feet shaken from under them by such concerns as alcohol, girls and athletic fixations.

And as a parent, with an emotional stake in your boy, you will find the gulf that necessarily separates the generations a little less wide than in most cases; indeed, you may develop at many points a bridge of communication between your life and his.

It has been my observation that the red elephants begin to appear early in child education. The most authentic educative experiences that a child has are the early ones. For instance, at the end of a year or more the baby has resolved two faces out of the two moons that have moved in his field of vision. He knows them a long time before they are named Mother and Daddy. In the same way, he drinks milk a long time before it is named. He walks and, after a time, says "walk." Before long this natural order is reversed. His elders begin by showing him pictures of things he has never experienced in reality. From this it is an easy step to telling him about things he has never experienced. The word then comes before the fact. Finally, the total school machinery is engaged in a concerted dynamic drive to feed the child with hypothetical experiences and unrealized realities.

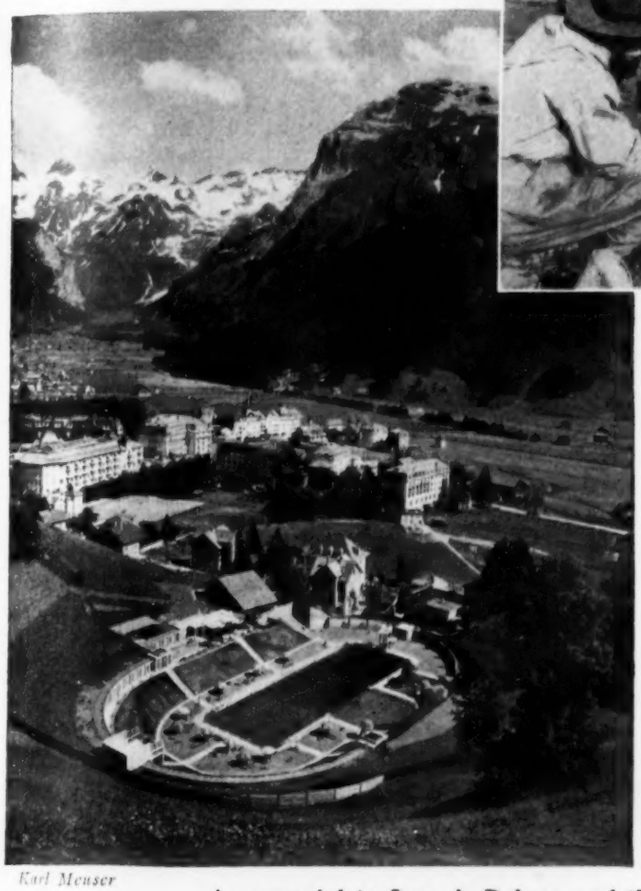
Things have somehow gotten turned hind side before. With our own 2 year old we are making a deliberate effort to maintain the natural sequence. This means that we have to exert ourselves to find a horse, for instance, and to acquaint him with it before we start to show him pictures of horses and to tell him tales about them.

Of course there is a reciprocal relationship between the real and the ideal, but the car of learning is driven backward too much of the time. It is the easier, lazier way to do. Nevertheless, I am convinced, on the basis of principle and experience, that any parent who will take the trouble to extend the school corridors into the street will be serving his children and himself to vital ends.

Ewing Galloway

Learning how to perform artificial resuscitation is all in the life of a Boy Scout. The Scouts in the first aid class shown above belong to Troop 40, Yonkers, N. Y.

Engelberg in central Switzerland boasts a beautifully laid out and artificially heated outdoor swimming pool.



Karl Meuser

Keystone

This athletic young mother in London believes in acquiring health for herself and her baby, so she straps him on her back and goes hiking. The device for carrying the child was shown at the Campers' Exhibition at the Imperial Institute in London recently.

A memorial to Jane A. Delano and the 296 nurses who died in the World War was recently dedicated in the garden of the American Red Cross Building at Washington. Sculptor: Dr. R. Tait McKenzie.

Acme

What the Amateur Nurse Should Know

By ANNE DELANEY

WHAT would you do if your patient insisted on wearing long underwear, a flannel nightgown and a bath-robe, and lying between blankets with a blanket wrapped around her and more blankets piled over her; if she ordered her attendant to keep the windows closed and did not dare to venture so much as a hand out from under the rampart of covers for fear of catching a cold?

Recently I was called to a private home to take care of a patient who was ill with influenza. Although the doctor wanted her to have a daily bath and plenty of fresh air, he had not insisted on the bath before I arrived because there was no member of the household who knew how to bathe a patient properly. I found my patient clad in the manner just described.

"Are you chilling?" I queried, after we were introduced.

"No," she replied, "but I thought I had better not take any chances of developing pneumonia. I'm terribly warm, though, and simply wet with perspiration."

At once I suggested a bath and clean linen, putting only a flannel nightgown on the patient and leaving her between sheets instead of blankets. Then fresh air was admitted through open windows. We were careful to see, however, that the patient's bed was not in a draft.

The patient was quite alarmed that her nurse would suggest such a radical treatment as a bath; but after no small amount of persuasion and reassurance, she reluctantly consented, remaining skeptical and apprehensive. After the bath was finished and the patient was resting comfortably between sheets, with the mass of tangles combed out of her hair, she was no longer skeptical.

"My, how rested and comfortable I feel," she sighed, "and to think I tried to talk myself out of this relief . . ." Her voice trailed off, and in a few minutes she was sleeping.

The amateur nurse may avoid much unnecessary strain and fatigue by having the patient's bed raised on blocks.

A few days later, when the patient was well on the path to recovery, I told her that she no longer needed a nurse.

"Oh, but a bath makes me feel so much better," she exclaimed. "I think I shall keep you as long as I have to remain in bed."

I instructed her daughter in giving the bath and changing the linen by simple but effective methods. The doctor recommends hospital care and the employment of a trained nurse during serious illnesses because, as one doctor said, a graduate nurse is the doctor's eyes when the doctor is away from his patient. However, nearly every woman is at one time or another called on to care for some member of the family who is ill. When such an emergency arises, even though the arrangement is merely temporary a woman is charged with the responsibility of knowing at least the fundamental duties of a nurse.

Any patient who is confined in bed should be given a bath and have his linen changed every day. If the patient is a woman, her hair should be combed every day and braided in two braids if it is not bobbed.

"There Are Tricks to All Trades"

The nurse will find that much bending over a low bed causes severe backache and unnecessary strain and fatigue; therefore it is wise to have the patient's bed raised by inserting blocks under the bedposts.

Before the bath is begun, see that the temperature of the room is about 75 F., that the windows are closed and that everything needed for the bath is assembled. The articles required are a basin of warm water, a bath towel, a wash-cloth, soap, rubbing alcohol, talcum powder, clean bed linen and clean pajamas or night-gown. Place the bottle of rubbing alcohol in a basin of warm water before you begin to bathe the patient, so that it will be warm when you are ready to rub his back with it. Now you are all ready to begin.

Patient Care Helps Impatient Patients

Have the patient move to the edge of the bed on his right and lie flat on his back. Fold and remove the spread. Ask the patient to hold the top blanket with both hands while you stand at the foot of the bed and pull the top sheet out. Next, pajama trousers are removed by the same method of procedure. Unbutton the pajama top and after slipping the patient's arms out, one at a time, remove the jacket.

The patient can be kept warmer during the bath if he is between blankets, so have him turn on his left side while you slip under him a cotton blanket folded once lengthwise. Then have him roll back on the blanket. Woolen blankets should not be used for this purpose, since they are liable to irritate the patient's skin.

The final preparation before beginning actual bathing is to remove the pillow from under the patient's head and to place a bath towel under his head and neck, which are to be bathed first.

Some feminine patients have such a delicate complexion and such a tender skin that soap must not be used for bathing their faces. It should be used, however, throughout the rest of the bath. With the wash-cloth wrapped around your right hand to avoid scattering stray drops

Photos courtesy of American Red Cross

There is an art as well as a trick to deft changing of the linen while the patient is in bed.

of water, gently bathe the patient's face and neck. Remove the towel from beneath the patient's head, and dry the bathed area gently but thoroughly.

Next, take one arm out from under the cover, and place the bath towel lengthwise beneath the exposed arm. Bathe, rinse and dry the arm, and cover it again. If the patient prefers to wash his hands himself, hold the basin for him while he does so, but do not allow him to expose both arms longer than is necessary. The other arm is washed by the same method. Be careful to keep the towel under the patient's arms while bathing them, as the towel will absorb any drops of water that otherwise would fall on the bed.

Fold the bath towel over the top of the blanket at the patient's neck, and pull the cover down until his chest is exposed. When the chest is bathed and dried, cover it with the bath towel and lower the blanket to expose the abdomen. After the abdomen is bathed and dried, pull the blanket up around the patient's neck again.

Prevention of Bed Sores Is Simpler Than Cure

Now ask the patient to turn on his side, so that his back is toward you. Expose, bathe and dry his back, rub it with alcohol and apply talcum powder. Notice whether there is any indication of a bed sore. If there is, report it to the doctor, for a bed sore can almost always be prevented; but once developed it is hard to heal because it is constantly irritated by every move of the patient. The patient is now ready to roll on his back.

Lift the blanket from the side and foot of the bed so that the leg and lower portion of one thigh are exposed. Cover the leg from the knee down with the towel, and bathe the exposed part of the thigh. Cover the thigh with the blanket, place the bath towel beneath the lower part of the leg, bathe and cover it again. The other leg is then bathed in the same manner.

With the patient still lying on his back, expose the feet, ask the patient to draw his knees up so that you may place the towel under his feet. Put the wash-basin on the towel, and place the patient's feet in the basin of water. He will appreciate this more than any part of the bath except, perhaps, the alcohol rub, for it gives him the sensation of taking a real bath. Dry his feet and cover them. After you leave the room, he will finish his bath.

A bath given in this manner causes the patient little exertion and does not allow any chance of contracting a cold as the result of exposure.

Standing at the foot of the bed, start the patient's feet through the legs of clean pajamas so that he can pull them up easily. Put one sleeve of the jacket on; then have the patient turn on that side until you put his other arm in the sleeve of the jacket. Now that the bath is finished, do not breathe too deep a sigh of relief, for there is still the bed linen to be changed. Ask the patient to turn on his side opposite you. Loosen the soiled bottom sheet at the head, side and foot of the bed, and roll it up against the patient's back. Spread the clean sheet over the exposed part of the mattress, allowing enough margin to tuck under the head and side of the mattress. Smooth the sheet out as far as the patient, and then have him roll back over the ridge of sheets until he rests on the clean sheet. Now go to the other side of the bed, pull the soiled sheet out, and lay it on a chair. Straighten out the clean sheet, and tuck it under the mattress on that side.

With the patient lying on his back, spread a clean sheet out over the blanket that covers the patient. Ask the patient to hold the top of the sheet while you pull the blanket out from the foot of the bed. Place the blanket over the sheet and put the spread on, allowing about 6 inches of sheet at the head of the bed to fold back over the blanket and spread. The top covers can be straightened more easily if the patient's arms are kept beneath the cover and his knees are down. At last the transformation is complete, and your patient will rest in comparative comfort.

If the patient must drink from a supine position, glass tubes are indispensable. They are generally a comfort that should not be denied, since they are available at any drug store for a few cents. When giving the patient a drink with a tube, be sure to hold the glass at an angle which enables the mouth of the tube to follow parallel to the plane of the patient's tongue.

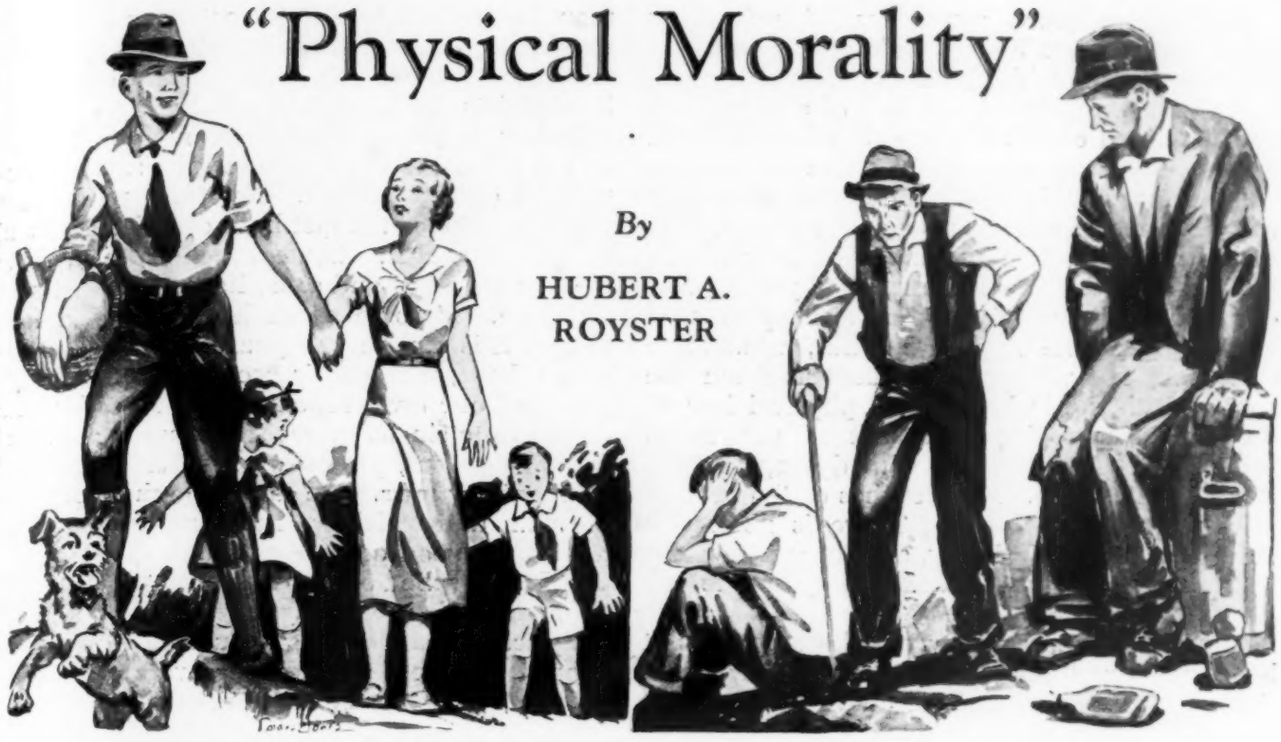
How the Patient May Help Rather Than Hinder

A final hint for the comfort of your patient is in regard to placing and removing air cushions or bed pans. During this maneuver, many patients, wishing to be helpful, will rise to a semisitting position and, with one elbow on the bed, will endeavor to lift their hips. This is strenuous exercise for the patient and usually irritates his elbows, besides making the task more difficult for the nurse.

A simpler method of procedure is to instruct the patient to remain lying on his back with his knees flexed, so that his legs from the knees down are nearly perpendicular to the bed. In this position he can easily lift his hips to enable the nurse to remove the cushion.

Unless the doctor gives orders to the contrary, the sick-room should be as sunny as possible and have plenty of fresh air, so long as a draft is avoided. When visitors are allowed in the patient's room, caution them to be cheerful; but do not let them tire or excite the patient with any boisterous or lengthy conversation. Let the patient rest as much as possible; do not continually ask him whether he is comfortable or whether he wants anything. Mental and physical relaxation point the way to recovery.

"Physical Morality"



By
HUBERT A. ROYSTER

Perhaps nothing will so much hasten the time when body and mind will both be adequately cared for as the diffusion of the belief that the preservation of health is a duty. Few seem conscious that there is such a thing as *physical morality.—Herbert Spencer.*

THROUGHOUT all ages, people have been more or less interested in the development of their bodies. The ancient Greeks, who were distinguished for their minds and for their morals, became so proficient in physical prowess that with their Olympic games they set the pace for the whole world. Other nations too are noted for their love of sports and have reaped results in high standards of manhood and womanhood. The tendency now is toward an increasing recognition of the value of attention devoted to the care of the body. The emphasis given to physical education in schools and colleges at the present time as compared to the lack of it some years ago is a witness of this fact. The doctrine of the "sound mind in a sound body" is universally taught by all educators worthy of the name. Especially notable and commendable is the advance recently made by women in their pursuit of games, outdoor life and the development of physique.

But with all this, there is among the majority of us a woful failure to realize the full import of cultivating the physical man and of paying proper attention to that part of our make-up. We all admit the importance of health, and yet our enthusiasm over it comes in spurts and jets. Some of us do not practice what we preach. Realization of the need of health and knowledge of its benefits do not always suffice, for sometimes those who are well informed on the subject of health constantly neglect it. This attitude of indifference toward the body is to be condemned, for "the preservation of health is a duty."

Every human being is accredited with three natures, the mental, the moral and the physical. He owes a debt to each one of these. If it is a sin to wreck the mind or to destroy the soul, it is also a sin to defile the body. Moreover, if it is a duty to cultivate the mental faculties and to keep the moral forces unsullied, it is likewise a duty to give heed and honor to the physical nature. It is not contended that every one should be an athlete. Such a consummation is assuredly not to be devoutly wished. What I do most earnestly plead for is that health should be regarded as a most priceless possession and that the physical department should be acknowledged as a coordinate branch of the body government. If we had to choose between the physical and the intellectual life, the former would undoubtedly be our portion, for health is so much more necessary for happiness than culture that we would hardly give it up for purely intellectual enjoyment. But, fortunately, it is not necessary to give up either; the three elements can be so mixed up in us as to produce the proper development of each, and this makes for perfection. To attain perfection, equal homage must be paid, each in its own sphere, to the mental, spiritual and physical sides of our being. In truth the three cannot be separated. Long ago Democritus declared, "If the body and soul were to sue one another for damages, 'twould be a question whether the landlord or the guest were more faulty."

It is surprising how much we owe to the physical nature. What is called disposition is largely

dependent on bodily conditions. A refreshing night's sleep gives a rosy view of life the next morning and enables one to bear cheerfully everything that comes, but loss of sleep makes one cross and causes the world to look gloomy. A normally working body machine bestows on its possessor a wide reputation for having a good disposition, when such a one may not be any better at heart than the half-sick fellow who looks at life through his altered physical processes. It is difficult for a man to keep in good humor unless he lives a regular, wholesome existence; for whenever he departs from the beaten path, he is breaking a physical law of the universe, and punishment is certain to follow. Even a preacher with dyspepsia finds it hard to be pious. All breaches of the laws of health are physical sins. There is no health except through right living, and there is no right living that does not include obligation to the human frame.

Countless crimes, many of which would not have happened but for perverted body functions, have been committed under the stress of physical circumstance. An unsound body as well as an insane mind is to be reckoned with in human wrong doing. Much is heard about the influence of the mind on the body, and it is an important relation. For my part, I have been equally concerned with the reverse of the proposition. I believe also that the body powerfully influences the mind. The mental, and therefore the moral, processes are affected for good or ill by the normal or abnormal conditions of the various organs. In my opinion faulty digestion resulting from dietetic errors or other physical causes produces worry as often as worry brings on faulty digestion. It may be another case of the cart and the horse. The same view was expressed in a witty but none the less truthful manner, when in reply to the question, "Is life worth living?" the answer was given, "That depends on the liver."

There is an extraneous aspect to all this, and it is found in the benign example seen and read in all men who are furnished with a healthy body. Faith and hope and inspiration are present and to spare in those who are brimming over with "physical morality." Their optimism is contagious, and we unconsciously worship the form that holds and nurtures such life and strength. It is good and it is righteous to be strong and well, both for our own sakes and for the joy it may give to others. "Laugh and the world laughs with you." But how unutterably sad and miserable is the man who never feels well and who takes pains to tell everybody about it! He exhales pessimism, and his approach is dreaded. While there are a few expert commiserators in the world, no one really likes to hear a recital of somebody else's troubles. "Weep and you weep alone." To the average man, health is naturally attractive and illness is repellent. Best of all, the matter rests largely with ourselves. Much of the physical infirmity that afflicts us is caused wholly by our own behavior in the transgressions of physical laws or the failure to observe rules, the sins of commission or of omission. Here is a paraphrase which expresses the gist both of individual and of public health: Some are born sick, some achieve sickness, and some have sickness thrust on them. If some of us have inherited frail bodies, it is our duty to guard them and to improve them; if illness is brought about through faults of our own, repentance is in order with a resolve to sin no more; if disease is conveyed from neighbors, protection is afforded by civil and sanitary laws. We can all do the best possible with that which we have; nothing more or less is expected of us.

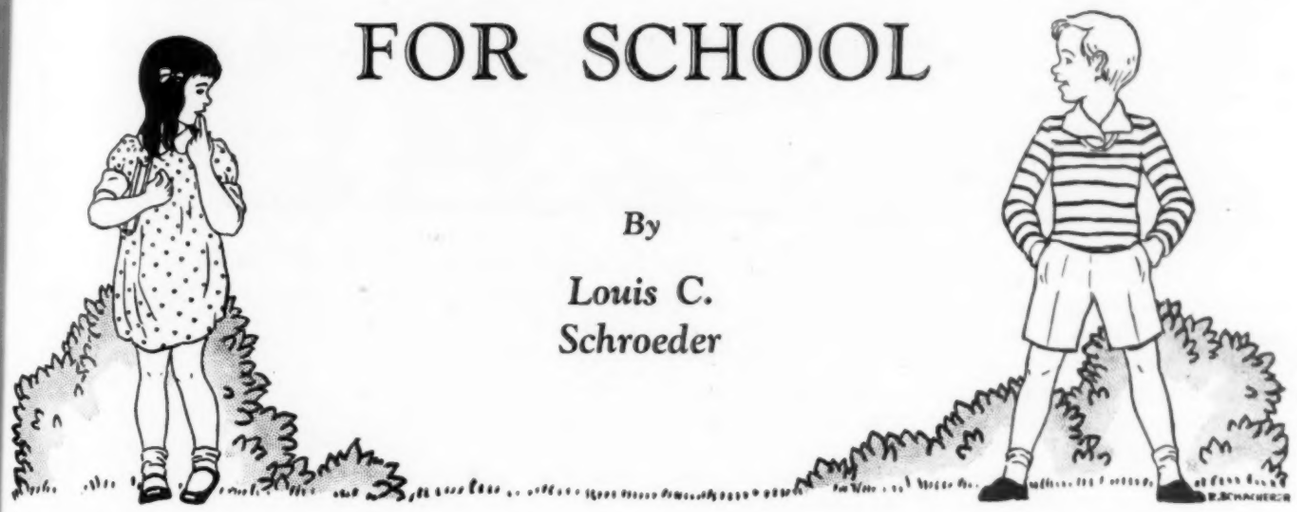
If I were called on to name any specific course through which each individual could attain "physical morality," I fear that I could not point it out. It is only through perseverance in right living, by heeding the admonitions of a physical conscience, and through profiting by previous mistakes that the feet can be set in the straight road. There are three guide-posts: Cherish physical earnestness; keep regular habits; guard your health above all temporal affairs.

It is not enough, however, passively to preserve the health; we must go forward and grow in physical grace. What most well persons need is not so much rest but more exercise. After a day's confinement in schoolroom, shop, office or home, one should engage in some healthful exertion so that the body may throw off its accumulated waste products. Fatigue is frequently chemical in origin. The 500 muscles in the human body are made to move. Only by moving can they develop, and only through such movement can the organs be exercised at all. "Health is the vital principle of bliss, and exercise of health." Especially should attention be directed to those muscles which are not employed in our daily occupations, and above everything should the muscles be kept in condition to bear the call of any sudden emergency liable to overtake us when we least suspect it.

> In life's small things, be resolute and great
> To keep thy muscle train'd; know'st thou when Fate
> Thy measure takes, or when she'll say to thee,
> I find thee worthy; do this deed for me?

There is a gospel of health to be preached. Let those who most keenly realize the triple nature of our being give due weight in their teaching to the physical attributes, so intimately associated with the mental and the spiritual. It is not logical, it is not right to neglect the one while we cultivate the others. The house must be kept in order, if we are to make it a suitable place of abode for those higher ornaments, the soul and the mind.

GETTING THE CHILD READY FOR SCHOOL



By

Louis C. Schroeder

WHAT an army of children go trooping into the schools for the first time every fall! Try for a moment to picture them. Two million boys and girls, setting their faces toward the first great adventure away from home. There go shy Susan and bashful Billy, fearful of what is going to happen because their parents never gave them a chance to develop confidence in themselves. Here comes pugnacious Peter who has dominated his home ever since he let out his first infantile wail; and, like Alexander the Great, he is now looking for new worlds to conquer. What contrasting pictures they present. The pale children are all the more pale when seen among others who are rosy cheeked. The bubbling-over, effervescent boys, shouting and racing, are a striking contrast to the prim little girls who would not muss a hair ribbon for anything in the world. Into the schools they go; and with them go our earnest prayers, because they are your children and my children and they are America's children.

But why should I direct your attention this early to something that is to happen next September? Simply to urge you to begin now to get your child ready for school. It is not too early to think about it, and you will probably find out that something must be done. Besides it is not fair to enter your child on the school rolls knowing that a problem of any kind, physical, mental or emotional, exists.

It is not fair to the school system which, after all, we as taxpayers support, and it is not fair to the child himself. The schools exist for the sole purpose of guiding and directing children toward the goal of self achievement. They do not exist to turn out geniuses or to teach the three R's. Their aim is to develop social units who have sound characters, a certain amount of factual knowledge and a keen desire to perfect themselves in the business of being wholesome, cultured men and women. To this end, educational supervisors and teachers are devoting their energies without stint. There are teachers whom certain mothers do not like, and there are educational frills and furbelows which might be discarded, but they only serve to bring out in strong relief the basic strength of our whole educational system.

Our schools, however, must contend with a problem which is not of their creation but which is a drawback and a hindrance of major magnitude. They must take into their classes children who are not ready for school. Many of them have defective hearing and often fail to hear a great deal of what the teacher says; others have faulty vision and fail, not infrequently, to see what has been written on the blackboard. Many cannot breathe properly because of enlarged adenoids and tonsils, and as a result they do not get enough oxygen into their systems. Often fatigue follows, and this makes these children appear stupid even though they are not. Some have been fed so poorly that their muscles lack tone; they slouch at their desks and stand and walk with rounded shoulders so that the chest never fully expands. Many crooked backs are attributable to the poor muscle tone that results from improper feeding.

Then there are the anemic children, the children with too little iron in their bodies because indulgent mothers give them only the foods they like. These one-sided diets, usually made up of too much starch and too many desserts and lacking in milk, vegetables and fruits, are most unsatisfactory. How can a brain function properly when the blood flowing through it is so

sadly lacking in vital elements? Many a child is said to be mentally retarded when the real cause of his disability has an organic origin.

This is not a pretty picture. The major and minor defects found among children entering school are necessarily saddening, but the real cause for sorrow is the fact that such a comparatively small percentage of mothers know that many of these defects could have been prevented by periodic health examinations.

It certainly is not to America's credit that so many of her families will run their automobiles into service stations at regular intervals but will trust to luck when their children's health is concerned. This condition cannot be laid to a lack of money, for there is provision somewhere in nearly every community for the examination of children practically free of charge. The best plan in seeking a solution of this problem of regular physical examinations is to talk the whole matter over with your family physician. You will be surprised to learn how far he will go to meet your wishes and how little you will have to allow in your budget for periodic health examinations.

What about those children who are to enter school and who already have physical defects? These must be corrected. The child's future demands it, and your sense of fair play will make it obligatory. The handicapped child puts an extra burden on the teacher; the greater the number of these children in a classroom, the greater the strain on the teacher, with a corresponding decrease in her efficiency. Naturally the whole class suffers, and the normal child does not get a square deal. Ask yourself, "Is my child physically fit to enter school?" In other words, is his body in condition to meet the strain of school life?

The body, however, cannot be divorced from the mind. The two go together and cannot be treated as separate entities. Nor does the fact that the prevention and correction of physical defects were considered first in this discussion make them take precedence over the prevention and correction of mental and emotional problems. These groups are interlocked. For that reason every one who works with children must look on each child as an individual, a complete whole, a union of body and mind and soul. All worthwhile parental education starts with this as a basic fact.

The interlocking of body and mind is well illustrated in the case of a 7 year old boy who was a terror in the first and second grades. He was insolent and irritable, he fought his teachers and playmates, and everybody wondered whether he was in his right mind. As a result of his belligerent attitude his school work was poor. Somebody suggested a physical examination, and it was found that he was seeing only about one tenth of what he should. The unfortunate child had not known what school was all about and had taken the only method he knew of maintaining his own self respect. Glasses were provided, and in two months he was a changed child.

All behavior problems are not so easily solved because the cause of maladjustment is not always a simple physical one. The great majority of behavior problems are due to the parents' ignorance of the fundamentals of mental hygiene. These fundamentals are not a set of fancy rules concerning inhibitions, inferiority complexes and conditioned reflexes. As a matter of fact, probably more than 90 per cent of mental problems are due to the violation of that age-old factor known as common sense. Is it common sense to insist on stuffing a child when he says he does not want to eat? Is it common sense for Mrs. Brown, whose husband is 5 feet 6 inches tall and weighs 130 pounds while she tilts the scale at only 100, continually to worry and to bemoan the fact that her Tommy is so much smaller than Johnny Jones, who might boast that the combined weight of his parents is 400 pounds? Is it common sense to expect a child to sleep soundly when the last thing he heard before jumping into his bed was a radio program featuring "The Bloody Dagger?" Is it common sense to punish a child in order to ease your pent-up anger or to yell at him when you know a soft word can often turn away wrath?

Is it common sense to expect a child to pay attention to you when you do not get his attention or when you pay him a reward for doing what he should? Is it common sense to expect him to have self confidence when you have from

the first day of his life done everything for him? Is it wise to thrash him for telling a fib when he knows that you will tell ten to his one?

The list of violations can be strung out indefinitely. Because of them, many antagonisms are created between parents and children. What should be a harmonious child-parent relationship often becomes a series of daily acrimonious battles, a verbal barrage of "Don't do that" and "Yes I will." These antagonistic attitudes are not conducive to mental and emotional stability and often lead to many behavior problems.

The following common sense rules should be kept in mind when one is getting a child ready for school:

Have him physically fit for school. This means a complete physical examination by a physician. This is especially applicable to those children who have disturbed sleep, poor appetites, temper tantrums, headaches or speech defects, who grind their teeth or who wet the bed. The physical examination is the parent's job, not the school's.

Prepare him psychologically for school by determining that in the future you are going to observe these sensible rules:

1. If he is bright and active, do not have him show off to satisfy your vanity.

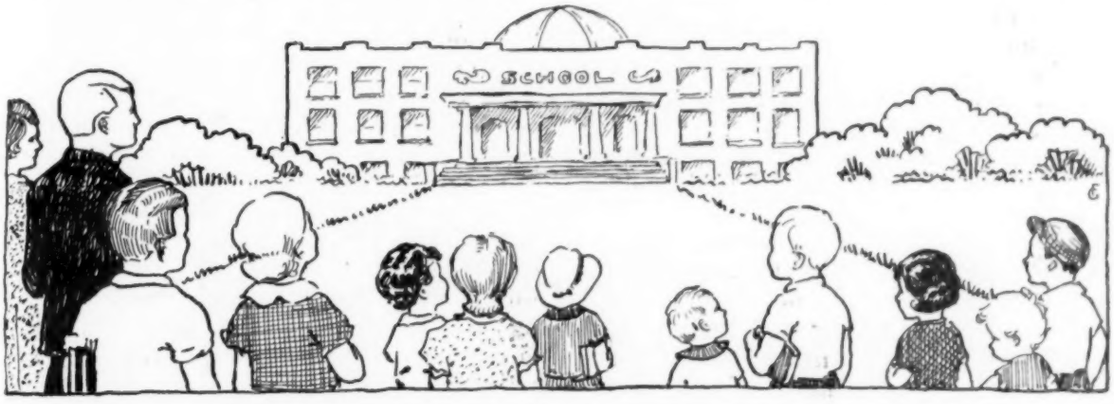
2. If he is slow, respect his type of intelligence by being patient, and above everything else do not expect too much of him. Many of our greatest men and women were slow beginners. In other words, give him time.

3. If he is good in some things but slow in others, remember that intelligence unfolds quickly along some lines and slowly along others. Never, under any circumstances, hold up his brother, sister or other children as examples. They may be brighter than he is.

4. If he is bashful and oversensitive, see that he gets plenty of opportunity to play with children of his own age. Develop his self confidence by giving him jobs that you know he can do, and then judiciously praise him. Pay attention to the bashful child. Unless he overcomes his bashfulness before entering school, he may have some extremely unhappy experiences.

These are only a few of the things you should bear in mind, but they are representative. The schools are prepared to take care of our children. It is not too much for them to ask us, "Are your children prepared for school?"

"Civilization Marches Forward on the Feet of Children"



With the realization that civilization marches forward not alone on the feet of healthy children, the Ann J. Kellogg School was founded to bring equal opportunity to all physical and mental types of pupils. *W. G. Coburn* describes the aims and purposes of this unit of the Battle Creek, Mich., public school system.

"Now I lay me down to sleep." For myriads of children these words mark the end of each more or less perfect day; and usually they are followed by the parental injunction, "Now go right to sleep!" But will the child sleep? The normal child is a dynamo of activity, both mental and physical. If he has put in a period of intensive study before retiring or if he has taken rather intensive physical exercise in the late afternoon and early evening, will his sleep be affected? *Dr. Glenville Giddings,* who has made a thorough study of this subject under carefully controlled conditions, will answer these questions in the September *Hygeia.*

"Parents of stuttering children are full of questions," says *Wendell Johnson,* clinician in charge of stutterers, University of Iowa speech clinic, "and, like the girl who was always making up riddles, they do not know the answers." But Dr. Johnson knows the answers and sets them forth concisely in "Helping the Stuttering Child."

And what of the older child, the boy or girl of college age? *Calvin T. Ryan* turns his attention to young people of this age. The points that the wise parent investigates are fully discussed in "If I Were Selecting a College."

In "The School and the Home: A Partnership," *Margaret Beard Gilpin,* a mother, takes inventory of some mutual obligations. Realizing that lack of cooperation between parent and school means that the work of the one is undone by the failure of the other, she tells what the school may expect from the home and what is the responsibility of the home toward the school.

Among the many other interesting articles in the September issue are "Sufficient Unto the Day," an article by *Fae Decker* who exposes the evils of overburdening the child with extracurricular activities; "Food Poisoning" by *Dr. Robert A. Kilduffe;* "Fiddle or Fiddle-Stick," an article in which *Dr. J. F. Rogers* discusses the measurement of intelligence and the relation between mind and body; "Teaching Your Child to Be Safe" by *Curtis Billings;* "Waging War on 'Polio'" by *Stella Randolph,* and a new serial for children, "Ambrose O'Pshaw, Detective," by *Nellie G. Herriman.*

TRAINING FOR ATHLETICS AND HEALTH

By ALFRED E. PARKER

Chapter XXIII. When Is a Man a Man?

"HELLO, ED!" greeted Billy Murray. "I'm glad you decided to spend your vacation here at the lake again this year."

"I'm glad, too, I can assure you," said Ed as he grasped the hand of his friend. "How is Jack getting along?"

"He isn't living with me now," replied Bill, with a mischievous twinkle in his eyes.

"Not living with you!" exploded Ed. "He hasn't gone back to the city, has he? He isn't sick again, is he?"

"Wrong guess, Ed. Jack's all right; and after we get a bite to eat, we'll see if we can find him." With this remark, Bill closed the subject for the moment.

After lunch, Bill informed Ed that they would have to hike at least a mile to find Jack. At the end of the mile hike, Bill halted in front of a newly built log cabin. Surely enough, Jack was there, but Ed hardly knew him. His stoop had disappeared. His face was tanned and rugged, and health radiated from him.

"Welcome to my new home, Ed!" exclaimed Jack.

"New home!" replied Ed, surprised.

"Yes, this is my home. I've rather taken a liking to the mountains. They agree with me, I'm here to tell you."

"You surely look a picture of health, Jack. Why, you are a regular man's man!"

"And that's just about the best compliment you could pay me, Ed," answered Jack, as he drew up chairs for his friends on the porch of his new home.

"I agree with you, Ed," remarked Bill, "that Jack has proved himself a man's man; and you know I've been thinking a lot lately of what qualities are most often displayed by successful men—men whom one would like to emulate."

"Being a man, I suppose, includes honor, high position, power, wealth and learning," said Ed in answer to Bill's comments.

"Yes, those attainments should be considered," returned Bill.

"If the position is an honorable one," continued Ed, "if the power is rightly acquired, if the learning is put to good use, and if the wealth is not tainted and is used to help others, these attainments are undoubtedly marks of a successful man. To my mind, though, there is something else that marks true manhood, quite as important as any of the qualities I have mentioned."

"Just what have you in mind?" questioned Jack.

"Perhaps I can best illustrate my point by telling you a story of a man about whom I was reading the other day. This man was born on a plantation in the South. He grew up surrounded by luxury. Even so, he was a fighter, a quality that helped him to attain greatness.

"On coming of age, this man wanted to attend West Point. He was unable to attain this ambition, however, and so he decided to be an army physician. One of his first assignments was to care for the yellow fever patients at Fort Brown, Texas. While he was engaged in this task, he contracted yellow fever and nearly died. Providentially he recovered and was thereafter immune to further attacks of this virulent disease. This fact made him a valuable man as a fighter of the yellow fever scourge.

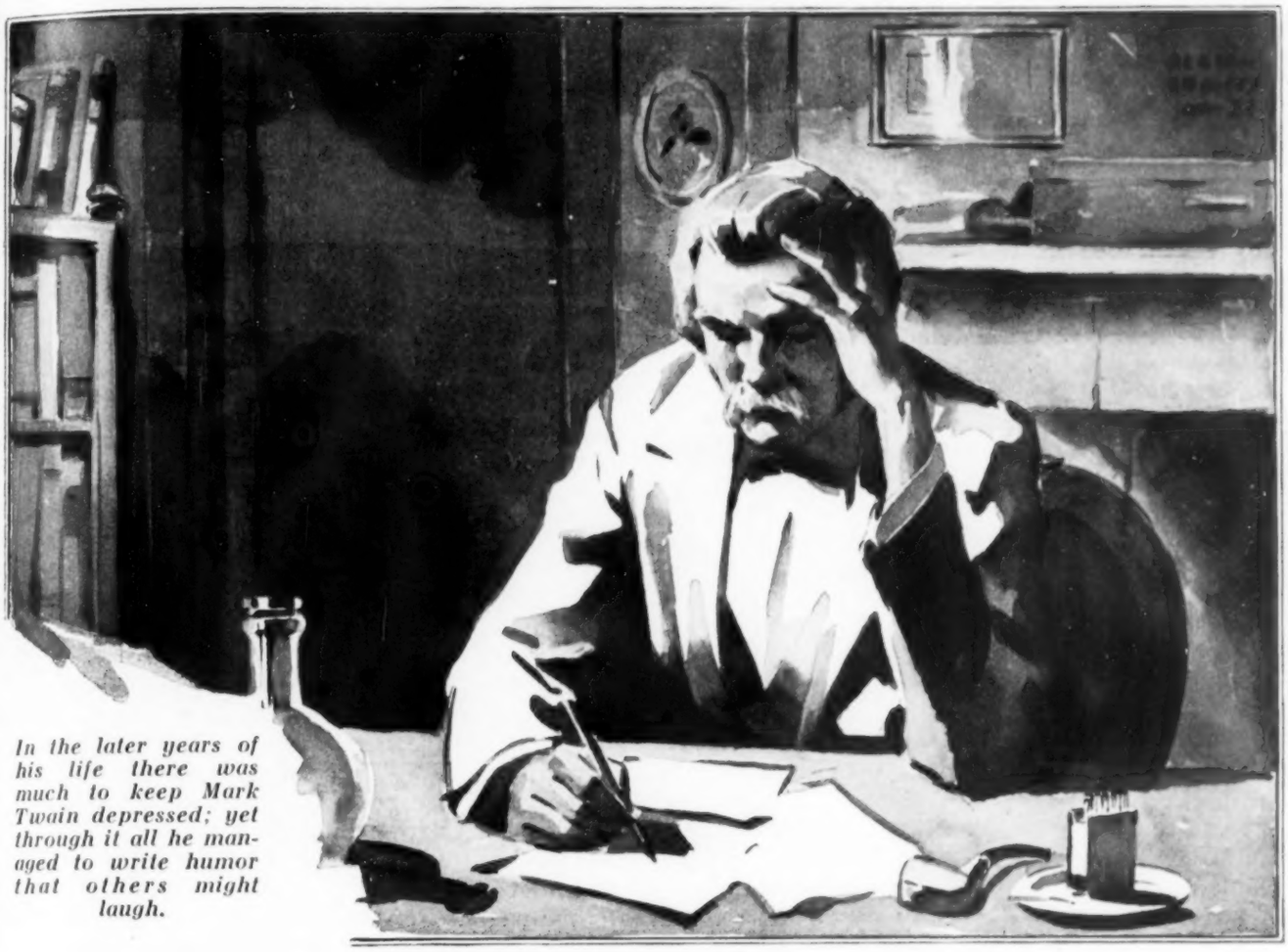
"His next task was to improve the sanitary conditions of Havana. Here, too, the yellow fever was running wild. After weary weeks spent in cleaning up Havana, this physician found the yellow fever worse than when he started.

"At about this time, scientists discovered that mosquitoes carried the yellow fever germ. Having faith in the scientists' reports, he set about to rid Havana of mosquitoes. This he did.

"So successful was this physician in ridding Havana of yellow fever that he was sent to do the same job in the Panama Canal zone. Here he was confronted with an enormous task, for he was expected to kill the mosquitoes on a strip of land 10 miles wide and 50 miles long, a region of swamps and tropical jungles.

"But this doctor had a fighting spirit. He realized the good he would do by accomplishing the job, and he set about to see this task completed. Even such men as Colonel Goethals, head of the canal work, and General Davis, first governor of the canal zone, and Theodore Roosevelt, were skeptical about the outcome.

"Nevertheless, heedless of opinion and the seemingly impossible obstacles, he won the fight—he conquered the yellow fever in the canal zone. That accomplishment has made Dr. William Gorgas famous. He risked his life



In the later years of his life there was much to keep Mark Twain depressed; yet through it all he managed to write humor that others might laugh.

and sacrificed financial gains that he might be of service to mankind. So, I maintain that service is a quality that must also be included in evaluating manhood."

Both of Ed's listeners agreed that he was right.

"Yes, I agree with you," said Bill, in commenting further. "The qualities you first mentioned are good, too, when they are developed in an honest manner. There are many virile men, though, who never attain to high positions and who never possess power or wealth. As for learning, I wouldn't give much for a man who possessed knowledge and nothing more. Being merely a storehouse of facts is not being a man.

"Theodore Roosevelt achieved practically all the goals you mentioned, Ed, and he remained a virile man to the end. He was honored, he had power, high position, wealth and learning; but even more important than all these possessions, he was of service to mankind. He was a man's man. He inspired and led other men; he was a worthy ideal for any boy or man to pattern after. More than anything else, in my opinion, Roosevelt placed emphasis on character, for he knew that without character a man cannot be a man."

"I believe you are right, Bill," remarked Jack. "I surely wouldn't consider wealth alone a mark of manhood."

"No, of course not," answered Bill. "Cecil Rhodes, though, was enormously wealthy, and he displayed high qualities of manhood. Especially did he show that he had a purpose in life. He determined to build an empire in Southern Africa, and he did. On the hottest days of an African summer he would work away in his tent, apparently unaware of the scorching sun. His assistants were continually complaining of the heat while Rhodes pored over maps on the table before him, ceaselessly jotting down notes.

"One of Rhodes's assistants asked him once how he could stand the heat. 'Heat!' replied the diamond king, 'why, I hadn't even noticed it.' There was a man with a purpose.

"The Cecil Rhodes scholarships are characteristic of the man. A college student who wins the Rhodes scholarship at Oxford is given 4 points for literary attainments, 2 points for success in manly sports, 2 points for personal character and 2 points for leadership. Success in sports, personal character and leadership, all attainments of manhood, are accorded 6 points out of the possible score of 10 points."

"Cecil Rhodes was one rich man who thought of something else besides his money," remarked Jack. "You men know that a year ago about all I could think of was making money. But my fight for health has changed me; it has given me a new point of view. I realize now that life

doesn't amount to much without health. What good are any of the achievements we have been talking about if one does not possess health?"

For a few minutes the three men sat in silence. Then Jack spoke again: "I have been doing some reading lately, too. It has given me a new opinion of manhood. The other day I was reading the life of Mark Twain. You know it's queer, but I never realized that Sam Clemens was so much of a man. I just took him for granted. I knew that his books 'Tom Sawyer' and 'Huckleberry Finn' were inspired because as a boy he lived the experiences he later wrote about. He was a mischievous, fun-seeking boy.

"But as a man he was a thoroughbred. At one time he lost a large sum of money in the publishing business and, feeling duty bound, he reimbursed those who were involved with him. He sacrificed for years and paid back every cent. That takes a high type of sportsmanship, let me tell you.

"Then in the later years of his life there was much to keep Mark Twain depressed. His wife was an invalid; some of his children died. Yet through it all he managed to write humor that others might laugh. To be able to stick at a task as Mark Twain did surely takes manhood of the highest order.

"And now, years after his death, we can read Mark Twain's humorous writings and refresh an overworked and depressed brain. Personally, I am helped greatly by reading about such men."

"That's true, Jack," said Ed, quite impressed by Jack's reasoning. "And what a lot of courage Mark Twain displayed!"

"No easy task, I'd say," offered Bill, "to steer the ship of manhood over the sea of life."

"You likey come to sup-per?" This interruption came from the Chinese cook, who stood smiling before his boss.

"You bet, Wong," answered Jack. "We'll be right in. And what an appetite I have now, Ed! Just wait until you see me eat."

"Yes," replied Ed jokingly, "you look as though you could break par on almost any supper course."

Chapter XXIV. The Joy of Living

WHAT IS your goal in life? As you journey to manhood, you may aspire to power, to honor or to wealth. You may have a burning desire to be a great physician or a great editor or a great bridge builder. Whatever your ambition, underneath it all lies the ultimate goal of all human effort—happiness.

How are you going to find happiness? Those who knew Sir Walter Scott say that he seemed always to be happy. He knew how to get joy out of living. Whether at work or at play, Sir Walter was happy.

Your dog will be your closest pal. At no time will he forsake you.

What strange quality is it that will put joy into your life? Theodore Roosevelt said that "the joy of life comes only to those who have carried the burden through the heat of the day, not to those who have shifted the burden to the shoulders of others." That is a strange idea of joy, you say. Perhaps you have never associated joy with work, but the joy of accomplishing a worthwhile task is there nevertheless.

There are some boys who have the wrong idea of the word "joy." To them it means "joy rides," "wild parties" and reckless sensuality. They are surprised when these experiences do not bring them joy. Boys with such ideas have not learned how to live.

First of all, the joy of living comes to those who possess good character. Closely associated with good character must be health. If these two possessions are yours, you will find the joy in living. Schopenhauer, one of the world's outstanding philosophers of pessimism, said:

> With health, everything is a source of pleasure; without it, nothing else, whatever it may be, is enjoyable; even the other personal blessings—a great mind, a happy temperament—are degraded and dwarfed for want of it. It follows from this that the greatest of follies is to sacrifice health for any other kind of happiness, whatever it may be, for gain, advancement, learning, or fame, let alone, then, for fleeting sensual pleasures. Everything else should rather be postponed to it.

Thus spoke a philosopher of pessimism!

You can do a great service for yourself by learning how to find happiness day by day, by developing an appreciation of joyful living, by becoming intoxicated with life. What an experience it would be if you could drink from a magic, golden chalice a precious fluid that would bring you health and happiness and joy each

day. But there is no such literal chalice from which to drink. Nevertheless, you can have health, you can revel in the joy of living by drinking of the cup of wisdom. Seek it out, and drink from it.

Surely, already you have found the joy in living. Perhaps it was when you rode on your favorite pony; and as the pony gathered speed, you thrilled at your ability to adjust yourself to the saddle. Perhaps it was on a lake or a bay when you rode an aquaplane behind a fast moving motor boat. The spray whipped your face; you gasped, but not with anguish, for between splashings you felt the thrill of the water slapping your bare skin. And then, splash! The pilot of the motor boat had turned the speeding craft at such a sharp angle that you could not stay on the aquaplane, and you were immersed. You came up sputtering, but you were happy.

How can you maintain that you have never experienced the joy of living? Have you never felt healthy and full of "pep?" Have you never enjoyed a sound and restful sleep? Have you never felt that your soul was bursting with joy, and that it made no difference whether the day was rainy or sunny? Have you never taken a drink from the cup of wisdom and suddenly found that you were getting joy out of living?

Yet even though he has health, the chronic pessimist says that there is no joy in living. Perhaps not; but think of the joy in the little matter of fried chicken, for instance. I pity the boy who cannot sit down to fried chicken, forget his troubles and, for the moment, be glad that he is alive.

There may be no joy of living with some human beings; but have you ever lived with a dog? You may be poor, extremely poor, so poor in fact that fried chicken is an unheard of luxury, but no boy is so poor that he cannot own a dog. You can save a dog from the pound master's club any day in the week. Try the joy of owning a dog. Your dog will be your closest pal. At no time, whatever the circumstances, will your dog forsake you. Every one else in the world may be against you, but your dog will never be.

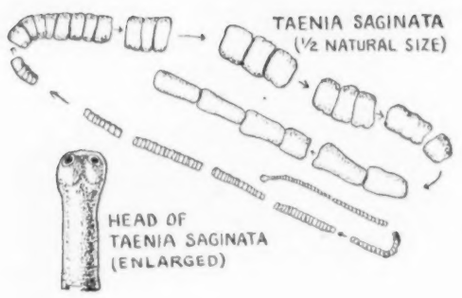
There is no joy in living? Do you read books? The poorest boy on earth can bring the world to himself through books. You can take a trip to those out-of-the-way places that you have longed so much to see. Every event, every adventure of past centuries is yours for the taking if you read books.

No joy in living? Did you ever hike into the hills? Did you ever stand on a mountain top scanning the valley below and the distant peaks beyond? Did you ever sit by a cool brook and watch the small fish at play? Did you ever walk by the sea and drink in the cool, exhilarating air? If you are one who knows nothing of the outdoors, you have missed much.

The joy of living is everywhere. Many have found it. Many others are searching for it. After all, it is not so hard to find. If you journey the road to health, you will find that in most cases the joy of living is quite within your grasp, and you will want to live for the very joy of living!

[The End]

Between splashings you felt the thrill of the water slapping your bare skin.



THE TAPEWORM

Chapter III of

Our Parasites

By CLAUDE LILLINGSTON

THE HUMAN INTESTINES may be the home of several species of tapeworm. Some incommode their hosts more than others, but even those that seem most innocent may not be so in reality; and the mere knowledge of the possession of an intestinal parasite is vexatious. One of the most widely distributed of the human tapeworms is Taenia saginata, or the beef tapeworm. It is comparatively rare in the United States and western Europe, but as it is common in eastern Europe, Asia, Africa and South America, tourists in these parts may easily pick up a worm and bring it back to the most sanitary of American homes. In Abyssinia, according to Sir Patrick Manson and Dr. A. E. Shipley, nearly every native has his tapeworm. They are almost as prevalent in the northwest provinces of India, where about 5 per cent of the cattle act as intermediate hosts.

Taenia saginata is also known as the *ver solitaire,* or lonely worm, because two or more are seldom found in the same host; at least this is true in Europe. It is tempting to speculate on the motives of this loneliness and the means by which the tapeworm achieves it. What happens when the first worm has pegged out a claim in the small intestine of its host, and a second, younger and smaller, escapes through the stomach into the intestines, there suddenly to become aware of a rival secure in the knowledge that possession is nine points of the law? Though speculations may be idle, knowledge of the tendency of this tapeworm to establish and maintain a monopoly is of great practical importance. Once the host has seen the head of his guest, expelled by means to be described later, he may rest assured that he need not endure any longer the discomforts of treatment. He is free from worms, temporarily at any rate, and is at liberty to resume the amenities of life once more. In the case of other tapeworms, however, several may pester their host at the same time.

The length that a single tapeworm may attain is prodigious. Ordinarily it measures from 4 to 8 M. (approximately from 157 to 315 inches). But Bérenger-Féraud claims to have observed a monster measuring 74 M. (about 2,913 inches). Such tapeworms bid fair to rival the sea serpent in length. A tapeworm of normal dimensions is composed of from 1,200 to 1,300 segments or proglottides. The size of these segments dwindles as they are traced upward toward the head, those nearest the head being exceedingly narrow and immature. A mature segment is from 16 to 20 mm. (approximately from $^{6}/_{10}$ to $^{8}/_{10}$ inch) long and from 3 to 7 mm. (from $^{1}/_{10}$ to $^{3}/_{10}$ inch) broad.

Each sexually mature segment, whether male or female, possesses elaborate organs of reproduction. Fertilization takes place between these mature segments, each of which may be considered as a bisexual animal complete in itself. In other words, the whole tapeworm is a colony of individual members hanging on to each other in a chain. The segment does not contain any organs of digestion; nutrition is dependent on absorption of the alimentary juices of the host through the outer covering of the segment. It possesses an elaborate water vascular system which performs the functions that the kidneys do in the higher animals. When the eggs have become fertilized, an egg shell is secreted within which the embryo develops.

The pear-shaped head is provided with four powerful suckers. When a tapeworm is rendered temporarily indisposed or unconscious by some vermifuge drug, these suckers release their hold on the mucous lining of the small intestine. The swirling flood, product of a timely aperient, carries the half paralyzed worm downward; and if it does not regain consciousness in time, it is ignominiously expelled, its saga ended.

Each mature segment is capable of independent motion; and under normal conditions, with no vermifuge or gastro-intestinal storm to disturb the even tenor of this worm's life, a dozen or so of the segments escape daily into the outer world. This process may continue for years, the segments either wriggling out singly on their own account or appearing in strings. Having abandoned their host, they may linger on his clothing, in his bedding or somewhere else in his room. During their peregrinations, their muscular contractions lead to the expulsion of the embryos with their shells.

At this stage the odds are overwhelmingly against the individual embryo. Its only chance of survival rests with the ox. It is true that other intermediate hosts, the goat and the giraffe for example, have occasionally been exploited, but it is only in the ox that this particular parasite in its embryonic stage feels perfectly at

Almost every Abyssinian native has his tapeworm.

home. In areas where cattle and human beings live together in uncleanly intimacy, the former swallow the tapeworm embryo whose slightly oval body measures only a fraction of a millimeter. Traveling down the alimentary canal of the ox, the embryo makes its way to the muscles of its intermediate host, creating what is known as "measly beef." Occasionally the ox's liver and other organs are invaded. The parasite forms a small cyst in the surrounding muscle. The dimensions of this oblong, watery cyst may measure about 8 by 6 mm. ($\frac{3}{10}$ by $\frac{2}{10}$ inch). When several such cysts are scattered throughout the muscle fibers, it is comparatively easy to recognize "measly beef" with the naked eye, but solitary cysts are readily overlooked. If one of these cysts is shelled out and examined under a magnifying glass, the head of the immature tapeworm can be detected turned outside in. If the cyst is placed in a warm salt solution, the head turns inside out. Its four baby suckers can be recognized under the microscope.

If death does not overtake the intermediate host, it is probable that this cystic stage of the tapeworm will last for years. But if the ox becomes beef which is eaten raw or imperfectly cooked, the embryo gets its chance if the beef eater is a human being. It is a curious fact that in the adult state this particular tapeworm is to be found almost exclusively in the alimentary canal of man. No other host is good enough. Attempts to rear this tapeworm in the dog have failed. The dog is preyed on by other worms, but Taenia saginata will have no dealings with a dog. The embryo, having been lucky enough to be swallowed by the ideal host, makes its way from the stomach into the small intestine. About two months after its entry, mature segments will be found escaping from the host. The life cycle has been completed.

In many cases the parasite causes little inconvenience to its host, but sometimes he may have to pay for his involuntary hospitality with colic and attacks of diarrhea alternating with constipation. He may also complain of nausea and dyspepsia, particularly when he is fasting. This tapeworm has occasionally been credited with even more alarming symptoms such as grave anemia, giddiness, epileptic seizures and hallucinations. The evidence against the worm is likely to be circumstantial and unconvincing. We are all liable to suffer from attacks of colic, diarrhea, nausea and giddiness, however foreign Taenia saginata may be to our interiors; because these various symptoms coincide with the discovery of the worm, it does not necessarily follow that the worm has anything to do with producing them, but it may. The worm must, therefore, be exorcised at the earliest moment.

Many different drugs have been recommended for the expulsion of this parasite, and one of the most reliable is extract of the male fern, Filix mas. Other drugs that have enjoyed a certain vogue are pomegranate root bark and its alkaloid, the sulphate of pelletierine, kousso, thymol, oil of eucalyptus, turpentine, and pumpkin seeds, given bruised to young children to avoid the reactions following the more drastic remedies. One may well wonder how to choose and how to use these remedies.

An entertaining reply to these questions has been furnished by Prof. A. le Dantec of the Faculty of Medicine at Bordeaux. Many years ago he acquired Taenia saginata by means he does not disclose. Perhaps he did not know himself. Most men in this situation would have

lost no time in speeding the parting guest, but not so with this distinguished French savant. He decided to turn this visitation to good account by a systematic study of the life history, the likes and dislikes, the idiosyncrasies and the frailties of his guest. He found that the segments could be kept alive for several days after they had escaped into the open if they were placed in an incubator in tubes containing peptonized bouillon renewed every eight to ten hours.

A freshly escaped segment, having been carefully washed, was put into this tube together with a thermometer. The behavior of the segment as it reacted to changes in the surrounding temperature was then noted. The segment, numb with the cold of the outer world, rallied quickly and began to move as soon as it was plunged into the tepid bouillon. A reduction of the temperature below 20 C. (68 F.) made the segment motionless. Between 20 and 25 C. (68 and 77 F.), it executed small range movements, and the temperature at which it was most frisky and unhampered in its movements was between 25 and 38 C. (77 and 100.4 F.). Above that temperature, the segment became agitated, and when the temperature was raised to 42 and 45 C. (107.6 and 113 F.), only small, undulatory movements were observed. When the temperature was raised to 50 C. (122 F.), all movement ceased; the segment was dead.

Having thus discovered the temperature most congenial to the segment, Professor le Dantec proceeded to study the action of various drugs on it as it reclined in the tube of bouillon. In addition to the drugs already mentioned, he experimented with chloroform, ether, quinine, tannin, thymol and others. The drug he found most potent was sulphate of pelletierine, much diluted solutions of which were capable of killing the most vivacious of segments in five minutes. The killing was quite permanent; when the segment was fished out of the toxic solution, carefully washed to free it from all trace of the poison, and then plunged back again into tepid bouillon which did not contain any poison, it remained motionless.

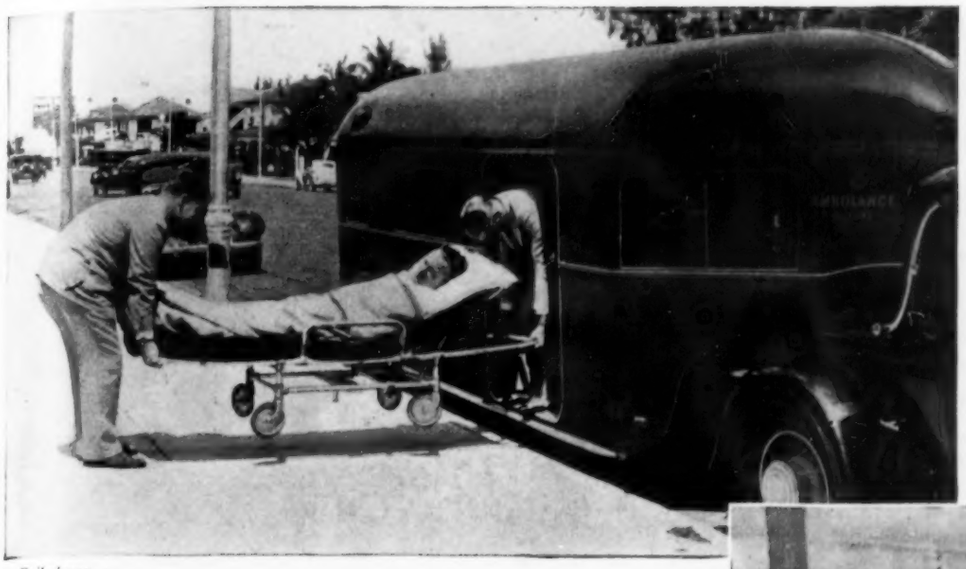
When this experiment was repeated on the head of a worm instead of on a segment, it was found that the head as well as the segment was exceedingly sensitive to minute quantities of sulphate of pelletierine. The same experiment repeated with other drugs showed that their modes of action varied. Some drugs, such as chloroform and ether, merely stupefied the worm, rendering it temporarily dazed or unconscious. Other drugs, such as thymol and naphthol, acted on the worm by virtue of the caustic irritation they set up. Other drugs again, such as kousso, failed to upset the worm even temporarily.

Speed is the essence of successful treatment; the moment to evict the worm, including its head, is when it is still groggy from the drug its host has swallowed. If the intestines have not previously been evacuated by an aperient, their solid contents may prove a rock of refuge to which the fainting worm clings. The respite thus provided gives the worm time to collect itself and attach itself again to the wall of the intestine. The first and most important step, therefore, is to empty the intestines of their solid contents; and to this end two enemas on the morning of the day of expulsion are a useful preliminary. The particular drug chosen for the occasion is now given by the mouth. If it is sulphate of pelletierine, it is given in two doses, ten minutes apart. From thirty to forty minutes are allowed to elapse to give the drug time to act directly on the worm. Then large doses of an aperient, such as sodium sulphate, are given in rapid succession, a new dose every fifteen minutes. The second or third dose of the aperient usually carries all before it, including the head of the worm. If its exit is delayed, an enema of tepid water may produce it.

These are the conclusions to which Professor le Dantec has come after exhaustive and exhausting experiments on himself and others. Having learned all that there was to learn from his own worm, he rid himself of it, "without pity and also without remorse," by the process just described. During the twenty-five years that have since elapsed, he has employed this system in treating patients without a single failure. He has found it no longer necessary to keep a patient in the hospital in order to rid him of his *ver solitaire*. It can be expelled in the morning, and its host can walk out of the hospital in the afternoon.

These are the broad principles on which action is taken against the tapeworm. However, the technic of treatment varies somewhat with the drug used. The most effective treatments are liable also to be the most upsetting to the patient, who may suffer from disquieting symptoms such as giddiness, nausea and vomiting. Chasing the tapeworm is, therefore, not an occupation in which the amateur should indulge casually and light-heartedly. Whenever possible, the treatment should be superintended from beginning to end by a doctor. Not only will he regulate every step of what may seem to the average layman to be a rather complicated procedure, but he will also be able to pass final judgment on the issue of the operation by identifying the corpse, or temporarily unconscious body, of the tapeworm. Its head and neck are so slim that if they have become detached from the larger segments they may be overlooked; and it is only after identification of the head that the last act comes to an end.

[NOTE.—In the September HYGEIA, Dr. Lillingston will continue his discussion on "Our Parasites." His next chapter will deal with the itch mite.]



Soibelman

The new "aerocar" is shown adapted to ambulance use. Because of its air-cushion coupling which attaches it to the power units of any stock roadster, it is entirely free from vibration, thrusts or road shocks.

Helpless children in the orthopedic department of the Los Angeles Children's Hospital are transported about the new pool and its adjacent heat treatment booth by the electric stretcher. It consists of a swinging platform, raised and lowered electrically and suspended from a monorail tramway overhead.

Acme

Bicycle riding, whether as a means of transportation as in Denmark or for pleasure as in this country, is healthful exercise. The scene below is a street in Copenhagen.

Century

The water supply of many residents of Palestine is carried in goat skins tanned in the ancient town of Hebron, the center of the country's tanning industry. The photograph above shows modern tanners preparing the goat skins.

J. Jay Hirz

The infant, a practical example of the benefits of supervised health living, has become the center of the family's health.

THE BABY—
The Family Health Center

MORE THAN TWENTY YEARS ago the baby of the family began a demonstration all his own to prove that the human health level could be materially raised. When he did that, he took his definite place in a new laboratory of science, the science of a high health maintenance; he became a world citizen of tremendous importance. How far has he carried over his demonstration into later years? How far has his family benefited from the experiment going on within its own circles? How far do the adult members of that group realize and accept the fact that a new era in physical and mental development was begun with that child's health achievements?

This new era is the third in the history of raising the world's health level. The first had quite a remote beginning when Hippocrates announced in 450 A.D. that disease had natural instead of supernatural causes. Out of that white hope was born, centuries later, the science of diagnosis and treatment of disease. Other centuries followed before men's minds could grasp even the fundamentals of that science. Fears and foibles, quacks and fads, helped to make the development of curative medicine a long, slow process, but it did develop; it developed to the point where Pasteur found the world ready to listen to his theory and proofs of causes and prevention. Not that the whole world believed at once what the tanner's son said, and not that those who did believe immediately put their belief into practice. Nevertheless men moved more rapidly to an acceptance of preventive measures than they had previously done to approval of curative medicine.

But advance as fast as they might, the third era, that of health building apart from disease curing or disease prevention, was stepping on the heels of the second within three quarters of a century of Pasteur's startling conclusions. Were men reasoning that if there were curative and preventive steps in this matter of health development there should be in all logic a constructive step somewhere ahead? Whether or not that was the way men's minds moved, the fact remains that when various social groups in the first decade of this century began to stage

By LENNA L. MEANES

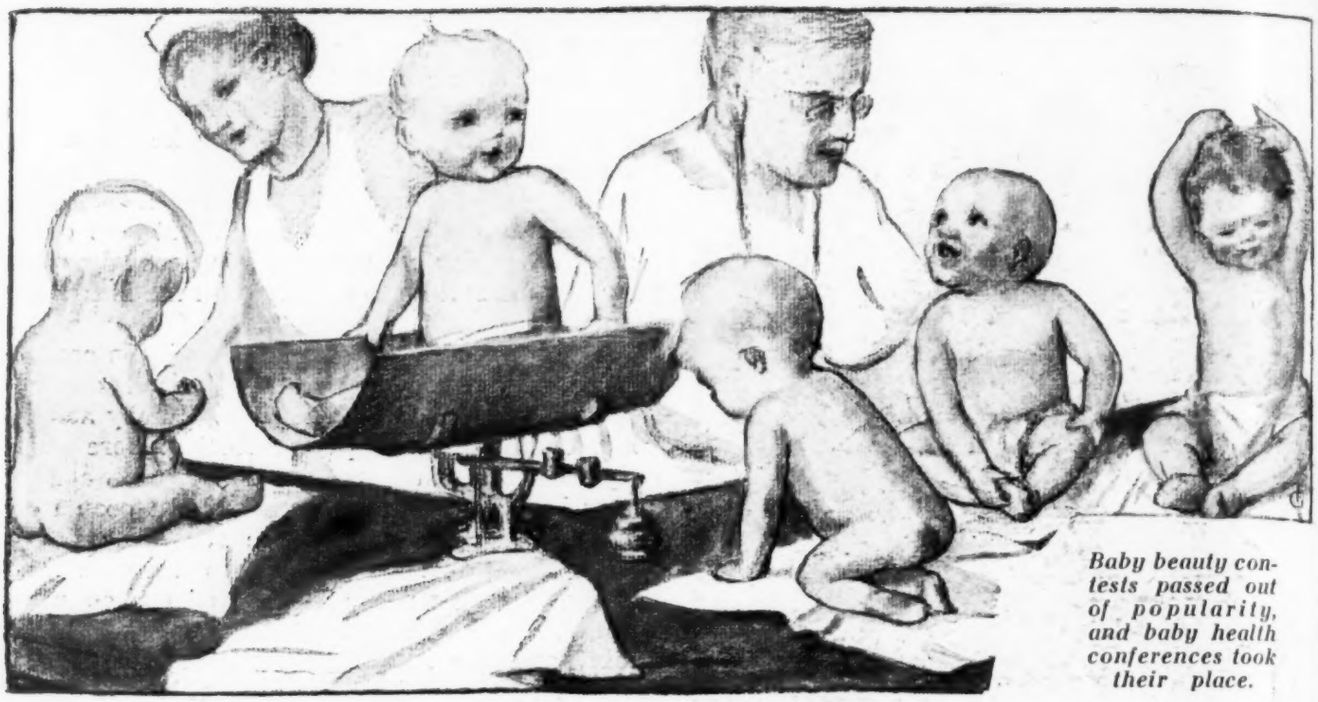
beauty contests for babies, the physicians of their districts fell on the innocent contestants as a possible means to an end to advance the health of all infants. If the round and rosy child was a beauty contestant, those wise men and women reasoned, then his parents must consider him in the pink of physical and mental condition. Was he, or was he only apparently so? Could he be a better baby? Could he even be the best baby his own resources permitted?

As a result, all unwittingly, that baby moved out into the center of scientific attention and thereupon took on his small shoulders the responsibility of proving to the whole world that he could raise his own health level; while at the same time he seemed to say that if he could, why couldn't all his small brothers and sisters likewise do so? And the third era, the new era of the science of constructive health, was here. For, with physicians and nurses pointing accusing fingers at pudgy stomachs and flabby muscles, with psychologists shaking heads over peevish tempers and too sensitive shrinkings of tiny mortals, the parents of those early contestants suddenly saw that there was a vast difference between their child being fat, good looking and apparently well and being in the possession of his own full measure of health. What could they do about it? The doctors told them that specific directions could be given for reducing that stomach, for filling those muscles out into desired firmness, even for helping to improve the child's behavior. What was even better, those doctors promised to be on hand a year from that time to check up on the improvement made.

No family could do less than heed. In consequence, baby beauty contests passed out of popularity and out of existence, and baby health conferences took their place. At first there were only scattered small groups taking advantage of these; but between 1908 and 1918 the gospel of a higher health maintenance for babies had spread until the United States through the Children's Bureau, the women of the country through the General Federation of Women's Clubs, and the American Medical Association through its Committee on Women's and Children's Welfare concluded that the time was ripe to put on a nation-wide weighing and measuring campaign for apparently well babies under 5 years of age. The call of that campaign was answered by 5 million babies "in person." It was certainly a goodly number, a number that might have yielded a reliable bundle of statistics to prove that health improvement is as practical as disease curing or disease prevention; but, because of lack of funds, little in the way of statistics ever came forth. There are percentages to measure the rise or fall of the birth rate, to mark the death rate, a fairly good number to tell how many have been laid low by contagious and infectious disease in a year's time; but nowhere is there any considerable body of figures to prove just how much improvement the human race is making in the business of better living each year. There are not even any figures for those babies who are exerting themselves valiantly to clean off all minus signs from their score cards.

No one can blame those babies for this lack of statistics. Instead they should be awarded a high prize for going right on with their business of proving that health in many of their cases is turning out to be not a negligible possession, not something merely left over after disease is eliminated, but a progressive, dynamic power worthy of their most insistent efforts to obtain and to maintain it. It is worthy also of the efforts of the baby's adult relatives not only for his benefit but for their own. Health building is a group activity, a lay group activity, with scientists standing by to aid when required, but with the initiative coming from the individual within the family group.

That is the main reason why the infant of the family, a practical example of what one may



Baby beauty contests passed out of popularity, and baby health conferences took their place.

become through supervised health living, is so certainly the center of the family's health today. Is that family taking him seriously, or are the members considering his health habits, nutrition chart, exercise, sunshine and relaxed, uninterrupted hours of quiet as merely childish requirements that are to be sloughed off later with other childish things such as his belief in Santa Claus and fairies? I hope that those who are half grown and full grown are wise enough to count their blessings and are proceeding in much the same manner as the youngest member living in their midst. There can be no dodging the truth that the general principles underlying health improvement and maintenance are the same for infant, child, youth and adult. The only difference lies in the application to meet individual needs. To be sure, that marks a vast difference since health improvement is no more a matter of following wholesale prescription, no more a matter of giving ear to popular fads and fancies than disease curing was in earlier days. But there is a comfort in knowing that the main steps of procedure for each member of the family are the same: first, having an inventory to find one's present health status; second, following the health prescription naturally growing out of that inventory; third, returning for a check-up at stated intervals.

The first and third steps are gradually gaining recognition even by apparently well adults. The second is not so generally accepted. The baby has no chance to escape it, for no mother will rest until her infant has gone as far as she can take him in removing the negative checks on his health card. The same can be said for the younger child who is urged on by that mother as well as by his teachers and the competition of his small friends in following the health chart. As the years increase, however, the adolescent of the family begins to look scornfully on many a health rule. Provided the adult finds that his inventory does not reveal any serious disease handicaps, he very likely soon drops any really conscious, consistent health-building efforts. A cry goes up from that adult that his day is too full to center his attention on health; and besides, he announces, so much attention to one's physical and mental state is likely to make one self centered. It need not do so. The busiest man or woman is the one who always can find time for the things that count in his day. Certainly no more time will need to be spent on a well planned health-building program than many a family now gives to frequent colds, headaches, useless friction and other avoidable health liabilities. Furthermore, no healthy minded person becomes self centered over anything; as soon as he does, it is time to apply efforts toward mental health with even greater vigor rather than with lessened energy.

The real truth is that healthful living soon becomes as automatic as any procedure based on scientific aid can become. Since this newer conception of health is only in its dawn, science is constantly adding discoveries of great importance to physical and mental improvement. Medical science has always done this for disease treatment; so has preventive medicine. In fact, such discoveries in the first two of the three eras of man's physical and mental betterment have kept pace with, if they have not preceded, the public's demand. The same is proving to be true of the third age.

For example, back in 1911 in the days of those first struggling baby conferences, Funk made his first vitamin discovery. Today every one knows

how another and another followed, making food values alone a challenging study for adult laymen. Only in 1932 was vitamin D found by scientists to be necessary to the growth and maintenance of health in bones and teeth. What is more, they told the layman that it was easily available in sunshine and also in cod liver oil. Calcium and phosphate had long been accepted as demanded by these parts of the body; today it is known that if vitamin D is not also present, the bones and teeth must pay the penalty.

What is true of nutrition is quite as true of exercise. Experts in physical education are working continually to adapt new discoveries to individual needs. Many old theories concerning exercise are therefore being discarded. Group exercises, walking and other methods in which we once took great satisfaction as covering our duty in this one element of healthful living have been found to be lacking. They may not harm one, they may even bring a real exhilaration, but they may also entirely miss one's individual needs. The stout man who sits at work needs a different exercise program from the stout man who stands at work. The same is true of the thin man. The effects of exercise, once thought to be confined to the muscles, now are known to extend from the most remote cell of the body inward to the vital organs.

With the advent of machinery into every man's daily life, the balance of work and rest, the balance of work and recreation, have become vital items in constructive health, items not as yet understood in their full value to man. What is understood is that in these, as in food and exercise, the individual must select, under scientific guidance, the balance best adapted to supply his needs. A bench lowered or raised may make all the difference between cramped and easily moving muscles, between efficiency and inefficiency, between an irritated mind and one filled with satisfaction with a good job done in good time with a minimum of energy expended. No expert is likely to follow the individual into his home to supervise or even to suggest these things; but they are things that are vital to the smooth running of that home and so, in turn, to easier, happier living. That is why efficiency engineers keep right on studying and announcing ways to add to such living; it is why the older members of the baby's family need to be alive to what those engineers are doing and saying.

Recreation is another health-giving element which machinery is bringing to the front in adult life. Because recreation is not being left entirely to the realms of childhood and youth, it is also becoming a subject of specialization in scientific health betterment. Recreation today may include exercise, for instance, but need not necessarily do so, as it was once supposed. Perhaps the change one needs, in the case of either the child or the adult, is found in another kind of work, in lying still, in relaxing, in letting go of the day's demands for a few minutes. Perhaps the opposite is true, and vigorous play or vigorous excursions into new scenes are needed. Whatever the individual chooses, however, he has not chosen wisely unless his choice brings him personally his own greatest relief physically, mentally, emotionally and spiritually, combined with his greatest possible creative stimulation.

I may have seemed to wander far from the small child demonstrating his health program in the center of the family. In reality, I have not, for whatever adds to his family's knowledge of health and its possibilities most certainly adds to his health, both directly and indirectly, exactly as his wholesome, well balanced living adds to the ease and joy of his family circle.

There is still another most important angle of the baby's program that swings us back to a concrete recognition of his experience. The baby could tell you, if he were sufficiently articulate, that health of the body is only half of the story; that in the very first baby contest the psychologist stood shoulder to shoulder with the physician to take stock of mental and emotional assets and liabilities quite as insistently as the physician did of bodily perfections and imperfections. The psychologist not only took stock of them but added his wise prescriptions for improved mental and emotional needs to those for better bodily health. There was a cause back of the child's behavior upheavals quite as surely as there was a reason for his physical upsets. Parents were advised to hunt for that cause. As a result one mother said, "In a way of speakin', what I have often thought was Susan's fault has really been mine."

What a blessing for Susan! What a blessing for parents as well. Self control, self expression, self adjustment, poise and leadership are latent in apparently well men and women, who, instead of developing those possibilities, go headlong into their days, too often upsetting their own objectives, interfering with the progress of others and hating themselves for their own futility. Mental specialists are now saying that all such fumbling is quite as unnecessary as poor posture, flatfoot, an aching back and the hundred and one other physical symptoms that are health liabilities following in the wake of wrong daily living.

How unnecessary such wrong living is, for there sits the baby pointing the way! There sits the family admiringly watching him. To the extent to which they arouse themselves, young and old, to the same intelligent cooperation in health activity that the child gives, to that extent will the family group realize the blessing of increased bodily strength to meet the day's work and of an increased poise to meet the manifold demands of family adjustments.

A Housewife Looks at the Committee on Foods

By Doris W. McCray

XI. Committee Acceptance of Beverages

THE COMMITTEE on Foods of the American Medical Association has accepted several brands of bottled beverages and beverage flavors for use in the home and has rejected others. In order to be eligible for acceptance, a beverage must be made of wholesome ingredients in a sanitary manner and must reach the consumer in a pure, fresh condition. The composition of the beverage must justify the name, and the product must comply with Food Law requirements. Furthermore, any unusual or unexpected ingredients must have label declaration; labels for beverages with individual, fanciful names must declare all the ingredients in the order of their decreasing proportions by weight, and the labels and advertising must not carry statements of a medicinal or therapeutic character and must be otherwise truthful and appropriate for the product.

One brand of a bottled carbonated beverage was rejected because the name is misleading. When a name includes a common food name, it is to be expected that the product will contain some of that food; the name "lime," for example, would lead one to expect some fresh or powdered lime juice to be included in the formula, with accompanying food values and flavor. Since the brand of beverage under discussion does not include lime juice, the name is directly or indirectly misinformative and misleading.

The Seal of Acceptance of the American Medical Association on the bottle of beverage which your child brings home from the corner drug store means, briefly, that the contents of the bottle are wholesome and honestly represented and that the information required by the Committee is properly presented to the public.

One may find difficulty in fitting a variety of beverages into the limited household food budget, because other foods yield greater value, from the dietetic standpoint, for the money expended. But one may enter them in one's accounts under the column of "pleasure" or "recreation," because they are used primarily to give refreshment and pleasure, although they do have a limited food value. Flavored beverages were used in biblical times; honey was frequently used to sweeten the water, which was colored and cooled. Orange flower water was used in ancient Egypt.

Water is the most important and valuable constituent of beverages as far as the body is concerned. Every one knows the value of the daily consumption of water, and all the benefits that may be derived from water alone are to be obtained likewise from the bottled beverages. Other ingredients of beverages are sugar, coloring, flavoring, acid and carbon dioxide.

The human body is 85 per cent water. A good sized man carries around with him from 17 to 20 gallons of water. Exercise makes the loss of water through perspiration more rapid. A football player lost 14 pounds of his weight in a game lasting seventy minutes; most of this loss was perspired water, largely from the lungs, but a small fraction of it was from body tissues that had been burned up. An oarsman lost 5½ pounds in a 4 mile race lasting twenty-two minutes. It is necessary to supply the body with water to build tissues and to regulate body processes. Lean beef is about 60 per cent water, and watermelon is 92 per cent water. One should drink sufficient water to meet the water needs of the body, and the bottled beverages or "soft drinks" may be used occasionally to supply a portion of this water. They are usually enjoyed when drinking plain water palls.

Children should not be encouraged to develop a liking for highly flavored and spiced foods to the exclusion of plain, bland, natural flavored foods. While children should be required to drink water regularly in order that their tastes and appetites may not be mistrained, they may be allowed to have the wholesome beverages also. The hostess may serve a sparkling, cold ginger ale to refresh her guests when there would be no reason for serving food. When she serves a beverage accepted by the Committee on Foods of the American Medical Associ-

ation, she may be sure that it will not harm her own children or other children who may be guests in her home. The carefully selected beverage has a definite place in the household. There are times after a heavy meal when one wishes only to sip something refreshing. A pleasing beverage is suitable at such a time when additional vitamins, minerals and other food values are not needed on the menu because they have already been supplied.

Beverages bearing the Seal of Acceptance are wholesome and are honestly represented.

Six brands of spring water have been accepted by the Committee on Foods. One of these brands is claimed to be a "bottled, pure, faintly alkaline, low mineral content spring water for all table and drinking uses." Such a statement certainly sounds reasonable, for there are no blatant claims that the water will cure rheumatism and a dozen other ailments.

Another accepted brand of mineral water is obtained from a well that was drilled in 1865 by prospectors who were boring for oil but who discovered the water instead. I was surprised to see how long this water continued to sparkle and bubble and effervesce, as compared to some other beverages which "went flat" quickly after they had been opened. The quality of the water used in manufacturing beverages makes a considerable difference in the finished product.

Bottling plants that do not have a special spring water or well water often have expensive equipment for clarifying and preparing the water to be used in the bottled beverage. The air is removed from water by a de-aerator in order to produce a beverage that will satisfactorily hold the carbon dioxide. Water used for bottled beverages should be clear, colorless, odorless and free from suspended matter, and should not contain excess mineral constituents to make it "hard."

Processes often used to prepare ordinary water for bottled beverages are coagulation of suspended matter, filtration, sterilization, water softening and distillation. Water used for bottled beverages must be hygienic, sanitary and free from harmful bacteria and microorganisms that may cause spoilage in the finished product and loss to the manufacturer or distributer.

It is wise to choose a carbonated beverage in preference to water from an unknown source. A spring may be as clear as crystal, and yet the water may be subject to constant contamination from water that is washed down from higher land where farm animals are pastured. Summer campers and tourists have learned that water other than that from a regular city supply is unsafe for use unless it has been boiled. Cisterns and wells at rural homes may be located lower than farm buildings, or they may be inadequately covered and become a health menace. Travelers often find that water in strange towns is distinctly unpalatable; in such cases they will find that bottled beverages, thoroughly chilled, are better liked.

The bottled carbonated beverages are about as clean and wholesome and are produced generally under as good sanitary conditions as are any packaged foods on the market, according to Dr. W. W. Skinner of the Bureau of Chemistry and Soils, U. S. Department of Agri-

GINGER ALE SALAD

1 tablespoonful and 2 teaspoonfuls plain gelatin
2 tablespoonfuls cold water
⅓ cupful boiling water
1 tablespoonful lemon juice
1 tablespoonful sugar
One 16 ounce bottle ginger ale
A few grains salt
2 cupfuls diced fruit—mixed pineapple, peaches, bananas and oranges, drained from juice

Soak the gelatin in cold water. Add the boiling water, salt and sugar. Cool to room temperature. Add the lemon juice and ginger ale. Allow this to set into a soft jelly and fold in the fruit.

In order to decorate a ring mold, pour a small amount of cool liquid into the mold and allow it to harden, with the mold set on cracked ice. Then dip pieces of fruit into the nearly liquid jelly and arrange them around the edge of the mold. Use slices of peaches, bananas, oranges, pineapple, maraschino cherries and sliced stuffed olives. When set until firm, finish filling the mold with the jelly into which mixed fruits have been folded and allow the jelly to become entirely firm. To unmold, dip the chilled ring mold into warm water and shake it until loosened, then quickly turn it out onto a platter. Peanut butter or cheese sandwiches and milk may be served with this salad.

culture. Sanitation is a practical necessity. The president of one concern told me that his plant never bottles on Monday morning, because that half day is spent in thoroughly cleansing the entire plant from attic to cellar. The bottles are sterilized, and regular tests are made so that their sterility is assured. All the bottling is done with automatic machinery; no hands touch the product, and everything is done to make the beverage as pure and as clean as possible. The beverages, therefore, have as a basis a perfectly pure water and one which has been accepted by the Committee on Foods. The sweet beverages are manufactured in the following manner: A plain sirup is made and then acidulated; the sirup is flavored with ginger, fruits, spices or whatever goes into the drink. The sirup is then carefully and closely filtered until it is clear; it is made of a sugar that is as nearly free from yeast as sugar can be. Inferior sugar cannot be used in such beverages because it may cause fermentation. No sirup is carried over from day to day.

Such a method was outlined to me by an official of a company manufacturing accepted beverages and may be considered typical, to a certain extent, of methods used in preparing other accepted brands, although there is bound to be some difference in the skill and care used in the preparation of food products.

It has long been considered necessary for bottlers to use a high grade of sugar because of the possibility of loss from fermentation of a sugar that contains some yeast. Nevertheless, it remained for the trade association to discover that this fact should be advertised. Good sugar must be used; so why not tell the public? Generally, cane sugar is preferred, although others may be used if they are properly refined.

It is sugar in these beverages which gives the "quick energy" that athletes need during contests. The sugar solution is sufficiently diluted that it does not cause irritation to the normal digestive tract. It is usually in the form of invert sugar, which is readily absorbed into the blood stream. Whether a carbohydrate is used immediately to supply energy or whether it is stored as fat in the body depends on whether or not such a carbohydrate is taken in excess of body requirements.

The sugar content of bottled beverages varies from 7 to 17 per cent, the average being 11 per cent. An average 6 ounce bottle contains approximately 76 calories. A pound of the average beverage contains 203 calories; this is more than many common foods contain to the pound. The caloric content of ginger ale is usually lower than that of other beverages. Because of the acid used in their manufacture, some of the beverages that have higher caloric content do not taste exceptionally sweet.

Since the bottled beverages are flavorsome and appealing in taste, they may be consumed in excess and prevent the intake of sufficient other normal foods in the diet and thereby interfere with good nutrition. This is also true of candy which, of course, is a much more concentrated form of sugar. With some experience, the child learns that overindulgence in any

kind of sweets or other single food is not profitable from the standpoint of comfort; and usually there is an adult who sees that the child is not allowed to have sweets in excessive amounts.

A small amount of sugar has the effect of quickly satisfying hunger and lessening the desire for food. All mothers have observed this effect when candy is consumed before meals. A bottle of the average beverage has about the same effect as a glass of water and one piece of candy, and it should not be allowed immediately before a meal. If the beverage or candy is served at the end of a meal or quite some time before the next meal, the effect is not noticed, since the sugar and water have been digested.

Some extensive experiments carried on in the research department at Iowa State College showed that when a diet, entirely adequate in every respect, was fed to experimental animals, the addition of carbonated beverages did not interfere at all with the normal consumption of the balanced rations, that milk and all other foods were taken and that the beverage supplied additional liquid. No harmful effects whatever were observed, and only the slightly beneficial effects which would be expected from the additional amount of sugar were noticed. Added to a diet low in carbohydrates, the beverage would furnish the benefit to be expected from an equivalent amount of carbohydrate food, and it might be advantageous for a child who will not take sufficient carbohydrate unless it is offered in an unusually palatable form. The carbonated beverages may be used for flavoring nutritious but less appealing foods, and thus tempting the child to take what he needs. Doctors are right in saying that the child who is properly trained should take all foods without such flavoring; but this tractability is not always characteristic of modern children. The usual child will consume more calories and a much larger proportion of the precious vitamins and minerals when the dishes offered appeal to him.

The combination of fruit juices with carbonated beverages in the home is especially good, since it serves the purpose of giving to the fruit juices, which furnish vitamins and minerals, the "tingly tangy" taste so much enjoyed. A few of the bottled beverages themselves contain some fruit juice, but in this article I wish to discuss only bottled and carbonated beverages as distinguished from the fruit juices that are so valuable nutritionally.

Saccharin was formerly used in sweetening beverages. It is 500 times as sweet as sugar and has no food value. Some states require that if saccharin is used, the bottle must be labeled "artificially sweetened." Saccharin as a substitute for sugar in beverages is not permissible under food laws, except for special purpose foods intended for special diets restricted in carbohydrates.

Clarity is considered a characteristic of purity and quality, and with the exception of those beverages made of crushed fruits, a clear beverage is customary and most attractive. Filtering of water, sugar solutions and careful combination of ingredients eliminate cloudiness except in those beverages containing natural fruit juices.

Caramel, which is made by heating dry sugar, is a common coloring used in root beer and other beverages. A dark brown is associated with a full, rich, mellow flavor. Artificial colors to be used in foods are certified by the Food and Drug Administration. Fifteen specified coal-tar colors are permitted, and a definite procedure is necessary if a manufacturer wishes to add a new color to this list of permitted colors. The certification of colors by the government means, briefly, that the colored foods which we consume are harmless. There are specifications covering the quantities of impurities that are permitted in food colors; the permissible quantity of each is extremely low. There are three ways in which a coal-tar color may be poisonous: by the nature of the color itself, by the presence of impurities of other colors which are poisonous, or by contamination from utensils or chemicals which have been used in manufacture.

Vegetable colors have been considered harmless, although this is not altogether true. Manufacturers who use vegetable colors should assure themselves that such substances are harmless in themselves and free from harmful impurities. The so-called coal-tar colors which are certified are much brighter, clearer and more attractive than the vegetable colors. Some are suitable for coloring butter and oils, while others are adapted for use in water solutions, such as the bottled beverages.

The government ruling requires that coloring in food shall not be used to conceal damage or inferiority even though the certified colors are declared on the label. In general where colors are legitimately used in foods and beverages, a statement on the label of the presence of artificial color is required. An exception to this rule is made when certain coloring matters are used that are recognized in the Department of Agriculture's definitions and standards for beverages and that do not require label declarations.

While colorings may be certified by the government, this process of certification is not practiced with flavorings. It is required, however, that they shall be harmless and that the name of the flavor shall conform to the actual composition.

According to the definition of the Department of Agriculture, ginger ale is the carbonated beverage prepared from ginger ale flavor, harmless organic acid, potable water and a sirup of one or more of the fol- *(Continued on page 762)*

I Want to Know

A FIRST PHYSIOLOGY

By Oscar Reiss
and
Dorothy Walter Baruch

XII

As You Go On Living

Even tiny new-born babies seem to have feelings.

JOHN was chanting in a sing-songy voice. He was making up the words as he went along:

"I know about eyes,
I know about ears,
I know about stomachs.
I know about muscles,
I know about bones . . . ."

Jean sang in a higher voice:

"And I know too,
And I know too,
And I know too;
I know more than you."

But Jerry looked thoughtful.

"Goodness," he said, "isn't there a lot to learn!"

Indeed there is, much more than Jerry or Jean or John had heard. Many books have been written on the subject.

That day he was slow and clumsy because he was worrying about his lost dog.

There are men and women, doctors and other scientists, who have studied for years and years and still have much to learn. Then, too, there are facts about the body which have not yet been found out and which not even the wisest and most learned men know. No one in the whole wide world understands everything about it.

"It's mysterious the way things are," remarked Jerry. "You wouldn't think so many different parts could be packed together inside of you in such a small space and yet leave room enough to work. You wouldn't think your blood had cells in it that could fight away germs."

Most mysterious of all, perhaps, is the fact that as we go about our living we have many sorts of feelings. Sometimes we feel like dancing and singing. At other times we feel that we could just sit down and cry.

Even tiny new-born babies seem to have feelings. If a baby finds himself slipping or losing support, he seems

Night after night he listened to that low rumbling noise, and he shivered and shook.

to feel afraid and begins to cry. If his arms or legs are held so that he cannot move, he seems to feel angry and starts to yell.

We feel sad. We feel glad. We do not understand exactly why, but we do know that it is important to feel happy. When we feel sad and gloomy, then our bodies do not work well.

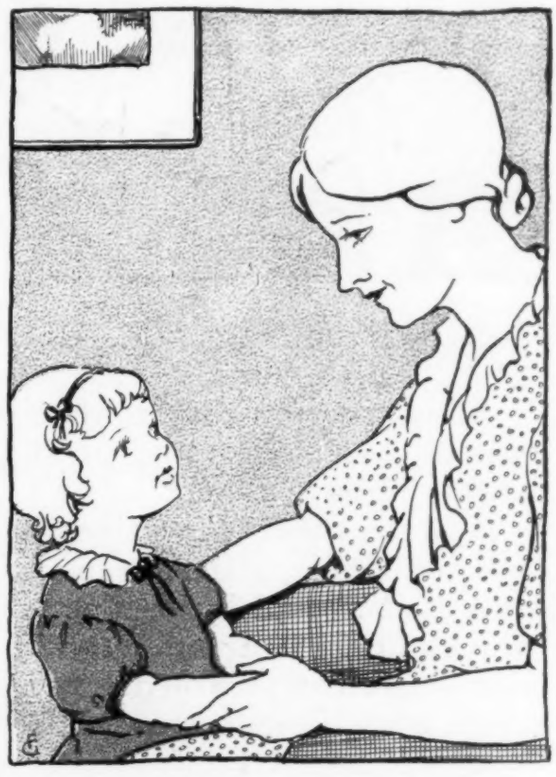
There was a boy who was dreadfully upset one day because his dog had run away. That afternoon he was slow and clumsy playing baseball. His muscles simply would not work properly for him. He kept thinking of his dog all the time and worrying about it.

Being anxious and worried or being afraid keeps us from being happy.

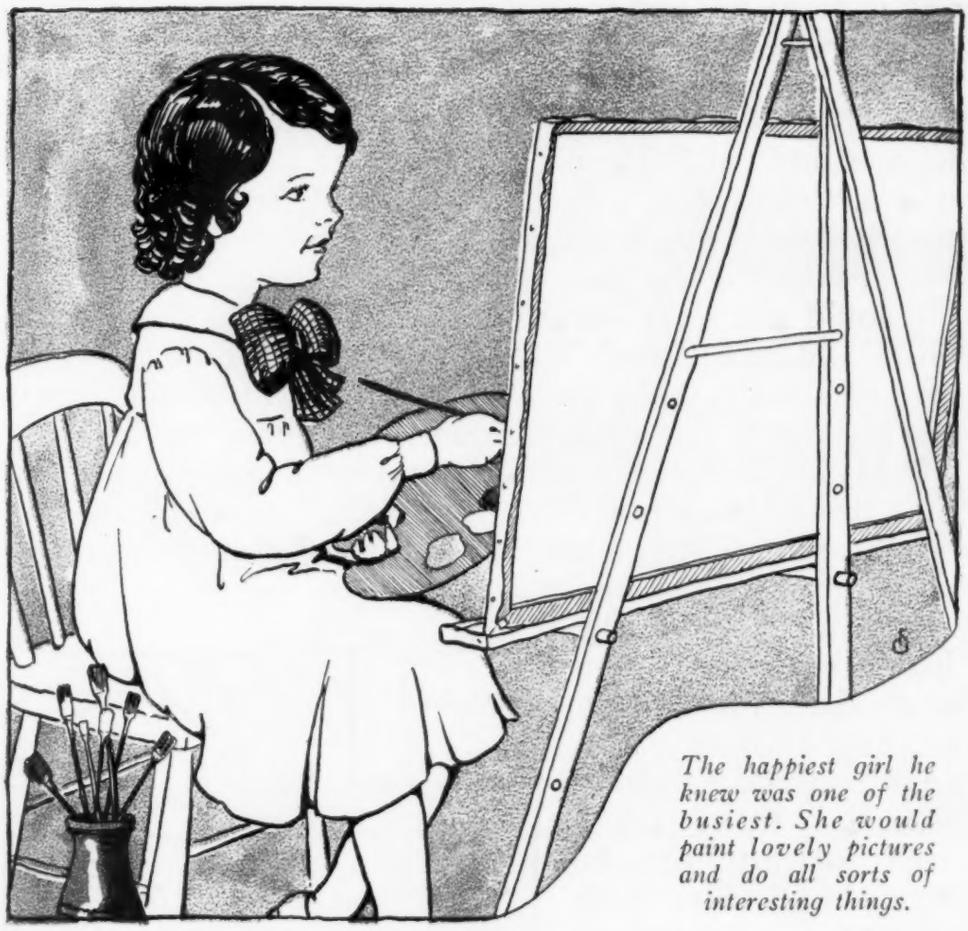
There was another little boy who was tremendously frightened by a noise that he noticed one night after he had gone to bed. It was a low rumbling sort of noise,

and it made his bed tremble. He felt like getting up and running to his mother. He felt like crying out. But he did not do either of these things because he had been hearing some older boys talk about how "bad it was to be a fraidy cat." He did not want any one to think he was a "fraidy cat." So night after night he listened to that low rumbling noise, and he shivered and shook. The noise would come and stop and come again and stop. He could not sleep because of being afraid. He became more and more tired. His body could not do its work properly because he was so tired. It could not digest his food well. He grew thinner. Goodness knows what would have happened; but fortunately his mother noticed that things were not right, and she questioned him and finally found out what had been troubling him and making him afraid and unhappy.

"Why you silly boy," she said, "you shouldn't have been ashamed to tell me. Come on and I'll show you that those noises are really nothing to be afraid of." She took him to a new bridge close at hand that had been finished on the very evening when he had started to hear those noises. She showed him how the automobiles and trucks passing over the bridge made just such low rumbling sounds. Then he understood that these were the cause of his fear. They were what he heard at night.



It helps to talk things over with some one who understands.



The happiest girl he knew was one of the busiest. She would paint lovely pictures and do all sorts of interesting things.

There was nothing more to feel afraid of, and he slept again. And again his body did its work well.

It is true, of course, that if you are sick, you will probably feel cross and grumpy. You know how it is when you have a cold.

But at other times, you can often get rid of the unhappy feelings that keep your body from working as well as it should by talking things over with some one who can help you understand the causes of your unhappiness. At least, if you are afraid or ashamed or bothered about something, never be like the boy who was afraid some one might think he was a "fraidy cat" and so did not try to talk the thing over with his mother.

"I know how talking things over helps," Jean announced. "Remember last time Jerry had a birthday

and got all those presents? I felt cross and didn't know why, but I talked it over with mother and decided I was angry because I wasn't getting any presents. Then I could remember that my turn would come next month, and mysteriously all the mad, dumpy, heavy feelings seemed to go, and I felt all light and smooth inside again. That was ever so much better!"

"Talking things over helps in lots of ways," put in John. "Remember the day we had a fight about who should feed the dog, and we were all moping around and feeling cross, and fussing over our own meals, and getting sort of headachy? And remember how we talked it over and got it straightened out to take turns? Then we all felt happy again."

Many unhappy feelings are caused by not having enough to do, by not having enough work and play. John said that the happiest girl that he knew was one of the busiest. She would paint lovely pictures, she would make things out of clay, she would build things with hammer and saw and wood, and she would also build with blocks. She would run in the wind and turn somersaults on the grass. She liked to read books and make up stories of her own. She often helped around the house, too, washing dishes, brushing shoes and sweeping. She was continuously thinking of interesting things to do.

"Well," said Jerry, "I guess feelings have a lot to do with bodies, all right. And bodies have a lot to do with feelings."

So if you want to go on growing stronger and bigger and finer, you will want to remember to eat proper foods, to get rid of wastes, to sleep and rest enough, to exercise enough, to have plenty of fresh air, and to keep finding ways of feeling happy.

THE END

"I Want to Know" will be published in book form by Harper and Brothers under the title "My Body and How It Works."

A Little Boy Speaks
By
Elaine V. Emans
1
Giraffes and bears grow big and tall
And eat no spinach leaves at all;
2
And no one yet has ever heard
Of bowls of oatmeal for a bird;
3
And oh! I'm sure dogs never chew
Their food so long as I must do!
4
Imagine tigers breathing deep
Or getting 'most ten hours of sleep!
5
I know a horse would hate to scrub
With soap and water in a tub;
6
And does a rabbit brush his teeth,
Front and sides and underneath?
Oh, surely animals have fun
In leaving all these things undone!
But still, I think it's great to be
A strong and healthy boy like me!
NELLIE
FARNAM

New Books on Health

THAT HEART OF YOURS

By S. Calvin Smith. Cloth. Price, $2. Pp. 212. Philadelphia: J. B. Lippincott Company, 1934.

THE CONSTANT increase in the number of cases of heart disease and its surpassing importance as a cause of death make obvious the necessity of volumes which explain the character of heart disease to the average man. Dr. S. Calvin Smith not only makes such explanations in language that is easily understood but renders a distinct service by his chapter on the use and abuse of heart rest and on the general suggestions for the care of the heart.

Intelligent patients with disease of the heart cannot but be benefited by the knowledge contained in this work. It ought to do much to change "heart invalids" to reconstructed human beings of use to society. It has the right psychology of disease and is altogether a worthwhile work.

MORRIS FISHBEIN, M.D.

A SOLDIER IN SCIENCE

By Bailey K. Ashford. Cloth. Price, $3.50. Pp. 425. New York: William Morrow & Co., 1934.

CONTRIBUTIONS of physicians in the U. S. Army Medical Corps to the advancement of medical science have been tremendous. The lives of Gorgas, Walter Reed, Carroll and Lazear are known to many. Now comes the autobiography of another great army physician whose name is associated with a fine type of medical research and whose experiences have carried him over most of the world. He has been decorated by various governments, and he is today continuing his efforts as an educator in tropical medicine. Dr. Ashford's name is associated with the earliest studies on hookworm in this country. His service with the Army Medical Department in the Spanish American War forms an interesting chapter in this volume. His personal relationships to Major Reed and many other leaders in medicine add great attractiveness to the story of the work. His work on sprue has also had recognition as a fine contribution to the advancement of medical science.

But it should not be imagined from this account that Dr. Ashford's autobiography is a "dry as dust" scientific record. He writes with a style that places him at once among leading contributors to medical literature. He has a fine humor and and a journalistic sense which would have carried him far had he chosen that profession. His story may be most heartily recommended not only to physicians and workers in public health but to all those who appreciate the romance that lies in medical research and in medical practice.

M. F.

Courtesy of William Morrow & Co.

Bailey K. Ashford, M.C., U.S.A. (A Harwood Hull photograph from a bust by Marjorie Daingerfield.)

OUTLINE OF CLINICAL PSYCHOANALYSIS

By Otto Fenichel. Cloth. Price, $5. Pp. 492. New York: W. W. Norton & Co., Inc., 1934.

THIS VOLUME has little, if any, place in the library of the average reader. It is intended distinctly for general medical readers and for psychoanalysts. It does not discuss the basis of modern psychoanalysis but is concerned wholly with the use of this method for the diagnosis and treatment of psychologic medical disorders. It seems to omit entirely the newer aspects of the consideration of psychoanalysis in relationship to general organic disturbances.

The language is so technical that few persons besides physicians will be able to avail themselves of the information that the book provides.

M. F.

CONTAGIOUS DISEASES

What They Are and How to Deal with Them

By W. W. Bauer. Cloth. Price, $2. Pp. 218. New York: Alfred A. Knopf, 1934.

THE CONTROL of communicable diseases was not entirely solved by the epoch-making discoveries in the field of active immunization. Behind the reduction of incidence of disease in every community is the educated and well informed public that has made this preyention possible. While much has been accomplished, the good work can only be perpetuated by a public that is informed as to cause and prevention.

The progress that has been made in contagious disease control can be nullified in a short time by errors in hygiene or deliberate violation of simple rules. For this reason, books of this kind are as effective as any concrete measure of disease prevention. They take the problem to the conscientious and intelligent parent where prevention of disease should begin. The author of this book has not written an ordinary textbook on communicable disease. He has given the reader a comprehensive and authoritative conception of infection, immunity and quarantine. The style of the book is engaging and simple. No one who reads this book can escape the obvious logic of disease prevention or the methods used in accomplishing it.

The intelligent mother should welcome a book of this type as it will serve to take communicable disease from the realm of mystery to open appreciation of the fact that much of it can be prevented. This book deserves a place in the library of every parent. It is one of the most practical and instructive treatises available on the subject.

H. G. PONCHER, M.D.

[NOTE.—Books reviewed or mentioned on this page, other than those published by the American Medical Association, should be ordered from booksellers or direct from the publishers. They may not be ordered through HYGEIA or the American Medical Association.]

SCHOOL AND HEALTH

A Department Conducted by J. MACE ANDRESS, Ph.D.

67 Clyde Street, Newtonville, Mass.

Promoting Worthy Use of Leisure

ALTHOUGH it is difficult to prophesy the future, educators and social workers are quite well agreed that the worthy use of leisure will be one of the greatest educational and social problems. In fact it is not necessary to anticipate what will happen within the next few years, because the question of what to do with one's leisure is with us now.

To meet this situation the Leisure League of America has been established in New York City. It is a nonprofit organization designed to be self supporting. Its purpose is to suggest interesting things that individuals may do in their leisure and to aid them in finding the particular things they like best to do. Books written by international authorities on the following subjects are now in preparation:

Care and Feeding of Hobby Horses	Earnest Elmo Calkins
Photography For Fun	William M. Strong
Writing	F. Fraser Bond
What To Do About Your Invention	Edward Thomas
Tropical Fish	Lucile Quarry Mann
Music For Everybody	Sigmund Spaeth
Be Your Own Dress Designer	Hannah Shelton
The Life Of The Party	Fred Menaker and Franklin Folsom
Quilting	Elizabeth King
Taking The Time To Know Your Children	Dr. James H Howard
We Sing Our Parts	Fairfax Downey
Be Your Own Interior Decorator	Helen M. Daggett
Hooked Rugs	Joan Crawford
Getting More Out Of Books	Myron M. Stearns
Amateur Astronomy	Gaylord Johnson
Hiker's Handbook	Raymond Torrey
Brain Teasers	Fred Menaker
Cooking for Fun	A Symposium
Indoor Gardening	Helen Van Pelt Wilson
Character Reading	Doris Webster
Swimming For Everybody	Robert J. H. Kiphuth
Facts And Fun	Alice Beeson Ecke
Giving Parties	Mary Fanton Roberts
How To Spend Your Husband's Leisure	Doris Webster
Knit A Bit	Maria Auchincloss
Dogs — Their Care and Training	Robert Lemmon

These booklets will be from 25,000 to 27,000 words in length and will be sold for 25 cents to defray the actual cost of publication. The first of these, "Care and Feeding of Hobby Horses" by Earnest Elmo Calkins, has an introduction by Walter Pitkin. This booklet lists approximately 700 ways to spend leisure and has a complete bibliography on most of these subjects. There is also a list of questions which will be helpful in discovering what hobby one would be most likely to enjoy.

Teachers who are on their vacations and who feel the need of learning something new, of cultivating an interest to lift them above the tedium and humdrum of petty details, will find the various publications of the Leisure League of America stimulating and suggestive.

Health on Playgrounds and in Lunchrooms

ONE of the phrases on the tip of the tongue of the up-to-date teacher today is "an activities program." In days gone by, we thought we were doing a good job in educating the child if he was able to reproduce facts after reading a textbook. Today the textbook is still in use, but there is general recognition of the fact that what children learn is reactions. Those reactions involved in lip service are different from the responses associated with keeping oneself clean and eating the right kind of food. There is also general recognition of the truth that children are not waiting to live in the future. They are living now, and if they learn the lessons of present-day living, the school has little or no need to worry about the kind of life that they will live after leaving school.

The theory of teaching practical reactions in the present life of children runs through all the special articles appearing in the School and Health Department of HYGEIA this year. In this issue the opportunities for teaching health through the activities of the playground and the school lunchroom are emphasized. These two situations, as will be observed, are of the greatest importance.

Floyd A. Rowe, supervisor of the bureau of physical welfare of the Cleveland public schools, tells about the many health activities initiated through the playgrounds under his supervision. Prof. Lydia J. Roberts of the University of Chicago and Ethel Austin Martin of the National Dairy Council, both experts in nutrition, show how practical nutrition may be taught in the school lunchroom.

Stadler

A display of posters suggesting the content of a satisfactory lunch, trays bearing the essentials of a healthful lunch and an actual display of good lunches in food models or real foods are excellent educational devices.

SOLVING HEALTH EDUCATIONAL PROBLEMS

Health Instruction in Lunchroom and Playground Activities

A PLAYGROUND HEALTH EDUCATION PROGRAM

FLOYD A. ROWE
Directing Supervisor of the Public School Bureau of Physical Welfare
CLEVELAND

A SENIOR medical student, who for a number of years had been a leader on the playgrounds, made the initial suggestion that health education might well be made a part of the playground program. This young man was asked to give some attention to the problem during the summer and report on a suggested procedure for another year. Experiments were conducted in weighing and measuring, habits of cleanliness and similar subjects.

Toward the end of the summer, it was decided to attempt a milk feeding project for children of two general types during the next year. These two types were to be the "locked-out children" and the children who were markedly below normal in weight. These types naturally divided themselves into two other groups, depending on the economic status of the home. There were those children whose parents could pay for the milk and graham crackers and those whose parents could not pay.

Perhaps a word of explanation is needed regarding the type called locked-out children. Under this group came all those children whose parents or guardians, as the case might be, were employed during the day and who were turned out of the home early in the morning and were not readmitted until their parents returned in the evening. In some instances these parents gave their children a few scraps of food wrapped up in a newspaper or a few pennies for the noon meal. In other instances the children had to shift for themselves. It was discovered in most instances that those children who were given the few pennies or the scraps of food did not wait until noon to spend the pennies or to eat the food.

No elaborate method of social servicing was established with those children whose parents could not afford to give them funds for the noon lunch. Workers simply observed the general attitude of the child and followed this up by informal questioning. When the workers were satisfied that the child did not have food or any means of getting it, the child was placed on the free milk list.

The first obstacle to be surmounted in this program was that of obtaining funds for the purpose of paying for the milk and graham crackers furnished the children on the free list. After some preliminary solicitations from neighborhood merchants with most satisfactory results, it became apparent that too much time and energy of the leader was absorbed by this method. Again it developed that the financial load was being placed entirely on localities where the neighborhood itself and the local merchants as a result were least able to meet the demands of the situation. Another problem was also presented when some of the merchants, with perfectly good intentions, offered the leader certain excess merchandise that could not be kept over to the next day. Sometimes this merchandise, if it were a lemon pie for example, was not particularly well adapted to the needs of the situation.

As a result, a Cleveland newspaper was approached with the problem, and the reaction was instant, positive and helpful. The official said, "Go ahead and take care of those children who, in your judgment, need the milk and graham cracker feedings and who cannot pay for them. We will either raise the money or pay for the food with our own check." For six years now, this newspaper has financed the program for the playgrounds of Cleveland, the first year by a subscription campaign and since then by a single amateur boxing program.

Health clubs are organized on the various playgrounds, and children are encouraged to weigh themselves frequently, not that such a procedure is believed to be of any particular merit in and of itself in a ten week period but because of the general principle involved. This general health principle is: A healthy child will grow. This seems to be a needless statement of an obvious fact. However, from experience it has been learned that this simple and easily applied criterion of health has not reached the conscious understanding of all persons. To make the child growth-conscious, this simple expedient of weighing and measuring is routine in both the school and the playground programs of health.

Another item of the program is insistence on practical cleanliness in handling the milk and graham crackers. Children as well as leaders are required to wash their hands preparatory to the serving of the lunch. Milk bottles are kept clean, and straws are furnished so that the milk is taken without removing the top.

This taking of the milk through a straw has another practical purpose in view as well as that of cleanliness. Milk is delivered to the playgrounds some time before the play leader arrives and often several hours before it is to be used. For this reason, all milk is delivered in metal containers and kept well iced. The result is that when the children drink the milk,

Drinking milk through straws is a better procedure than taking the half pint of cold milk into the stomach in a few seconds; it is also more sanitary on the playground.

its temperature is liable to be below 40 degrees. Drinking the milk through straws takes a child from two to three minutes. It is felt that this is a far better procedure than permitting the child to take the half pint of cold milk into his stomach in a few seconds.

The bottle of milk is supplemented with a serving of graham crackers; three is the usual serving, but the number is considerably augmented in cases in which the instructor deems it advisable.

It should be mentioned that the companies supplying the milk to the playgrounds do not make any additional charge for icing the milk. They also permit the return of unused milk from the day before, crediting the account for the full amount. It becomes apparent from this that the milk companies are cooperating with the project in a splendid way.

Another angle to the health program is the matter of attention to first aid requirements. Every playground is supplied with the necessary materials for giving first aid to all injured children. Cleanliness is again stressed. This is more difficult than might be imagined. All grounds are surfaced with crushed slag, which is usually extremely dusty. Various methods of allaying this dust nuisance were tried. For several years, chemicals were tried; but any of the chemicals used were found to have a deleterious effect on clothing, especially on leather shoes. It was also thought that the chemicals affected the growth and even the life of the trees. In addi-

tion to these considerations, there was introduced the deciding factor of finance. It became necessary to reduce expenses. Therefore the procedure now is to instruct the members of the "Fire Department," a part of the playground organization along with the "Police Squad" and the "Sanitary Squad," to sprinkle the grounds with water from time to time as it is required.

The Sanitary Squad also has an important function to perform in that among its duties is that of keeping the grounds clean and free from paper, broken glass and refuse of all kinds.

For the past several years, the direction of the health education program in the playgrounds has been given by the person who is responsible for the program in the schools during regular term time.

THE SCHOOL LUNCH MAY TEACH NUTRITION

ETHEL AUSTIN MARTIN
Nutrition Specialist, National Dairy Council
CHICAGO

METHODS of using the school lunch in teaching nutrition may be grouped under three heads: (1) salesmanship in the cafeteria; (2) educational devices used within the lunchroom, and (3) educational activities carried on in the classroom and otherwise integrated into the school program.

Under salesmanship may be grouped those activities which subtly influence the student's choice of foods; for example, the arrangement of the cafeteria counter to attract pupils first to foods which are best for them, food "bargains" such as vegetables served free with meat orders and protective foods sold below cost, attractive plate lunches at moderate cost with choice between dishes of similar food value, free samples of foods which are served for the first time, segregation of the candy counter from the regular lunch counter, and, in general, a tempting array of well cooked wholesome foods sold at a reasonable price to compete with neighborhood stores.

While salesmanship is an indispensable feature in a successful school lunchroom, it must not be confused with real health education measures. Proof of the need of educational work in addition to salesmanship lies in the fact that in many excellent school cafeterias, children choose poor lunches. The real function of salesmanship in the cafeteria has been shown by a study made expressly to determine its value. For the purpose of the study an ordinary school cafeteria was literally transformed into an unusually attractive lunchroom. Similar improvements were made in the appearance and quality of the food. Increased patronage in the lunchroom was the most outstanding result of the transformation. Total sales advanced immediately, and after two months the daily cash receipts averaged 31 per cent more than during the best previous month before the salesmanship campaign. Purposely, no educational methods were employed. It is not surprising, therefore, that there was no permanent or striking improvement in the quality of lunches selected.

Educational devices used within the lunchroom are planned to teach the pupil at the time he is selecting his lunch that a good lunch is desirable and that certain foods form the basis for a good noon meal. Methods of this type which have proved successful are scoring students' lunches, the display of posters and pictures suggesting the content of a satisfactory lunch, advice to individual children over the counter as to what to buy, suggestions, verbal or printed, on completed trays as to what is needed to make a better lunch, actual display of good lunches in food models or real foods so that children may see and learn about desirable food combinations.

It is important that children be given some concrete pattern for a satisfactory lunch. The requirements for such a lunch should be high but not impossible of attainment in the locality. Equally important is a clear and simple statement of the essentials of the lunch with suggestions for substitutions where they are permitted. The following lunch pattern has been widely used in school cafeterias and has been named an "A" lunch by children in schools where it is used:

- **Milk**—½ pint, or two foods containing milk, as ice cream, milk soup, creamed vegetable or cocoa.
- **Vegetable**—(beside potato) or fruit, a full serving.
- **Substantial Foods** — Two servings, as bread and butter, potatoes, macaroni, beans and meat.
- **Dessert**—If desired, but not essential to a good lunch.
- **A Warm Food** — At least during cold months.

Just as salesmanship alone is not sufficient, so must lunchroom education methods be fortified with teaching the "reason why," if good food habits are to be permanent. However, much headway can be made by the devices mentioned, while work of a more fundamental nature is getting under way.

Educational practices outside the lunchroom which have a direct bearing on food habits may differ widely in character. The actual classroom teaching is of first importance. Here the children are taught the requirements for a good lunch and the reasons why a good lunch is desirable; the level of the teaching, of course, depends on the age of the children.

Various ways of encouraging actual selection of good lunches are a part of the activities program. Playing cafeteria in the classroom is a popular and interesting device for teaching the selection of good lunches. The cafeteria is built and operated by the children themselves. Paper models are used for foods, and children learn to score lunches. Often children from various grades take turns arranging the displays of good sample lunches in the lunchroom. Older groups even learn to score the lunches of their classmates by the method previ-

Playing cafeteria in the classroom is a popular and interesting device for teaching the selection of good lunches. The cafeteria is built and operated by the children themselves; paper models of food are used.

ously described. In some schools the lunchroom manager encourages better lunch selection by sending the daily menu to each classroom, thus making it possible for the teachers to give students practical help in selecting their lunches before they go to the cafeteria.

The upper grades and the high school offer endless opportunities for centering interest on the school lunch. Some of the methods used in one school which I observed may be briefly listed. A unit on the school lunch was given in the home economics classes. Occasional assembly programs stressed good meal selection in the form of plays or other attractive features. The results of the school lunch surveys were reported in the school paper. Suitable posters suggesting the need of a good lunch were made by the art classes to hang in the halls and lunchrooms. Graphs illustrating the progress in lunch selection were made by the mathematics department, and records on the bulletin board were kept up to date by students especially appointed for this purpose.

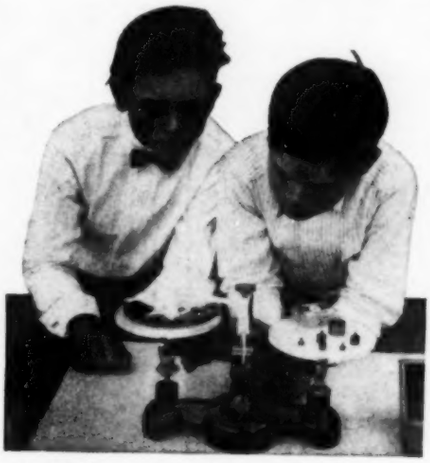
There is probably no activity that is more effective at all grade levels in emphasizing an adequate lunch than the rat feeding experiment. In such a demonstration one rat is fed foods desirable for an excellent lunch and a second rat receives a type of poor lunch popular in the school cafeteria. The weights of the two rats are kept, and charts are made to show their progress. These, together with the general appearance and disposition of the rats, will convince the most skeptical child of the advantages of a good noon meal.

Obviously the ideal plan for a health education program involves every department of the school, with the cafeteria playing its own part in the entire plan. The school lunch, however, is often the convenient entering wedge in starting a broader program and may serve as a stimulative and beneficial activity as the more complete program develops.

THE SCHOOL AS A HEALTH AGENCY

LYDIA J. ROBERTS
Chairman of the Department of Home Economics
UNIVERSITY OF CHICAGO

THERE is no single agency in the school organization that offers greater opportunities for health education than does the school lunch. The reasons for this are obvious. One of the main tasks of health education is to teach the children how to select suitable, adequate meals and to develop in them the desire to do so. When the noon lunch is eaten at school, the lunchroom offers an ideal laboratory for the practical application of health teachings. Yet few schools, so far as I am aware, are adequately utilizing these opportunities. Even though excellent foods are served, the children may be choosing inadequate, improper lunches day after day under the very eyes of their teachers who should be responsible for better practices. Al-



Probably no activity is more effective at all grade levels in emphasizing an adequate lunch than is the rat feeding experiment.

though there is no way of knowing to what extent this is generally true, yet a recent study of forty schools in various parts of the country showed that in no single school were even 10 per cent of the children choosing lunches which met the minimum requirements for adequacy. It is probable, moreover, that this condition is fairly common.

What can the school and the teachers do to secure better lunch selection on the part of their students and to utilize to the fullest extent the educational opportunities of the lunch period? The first step is to study the lunches now being chosen by the children in order to know what improvements are needed. A simple method of doing this is as follows:

The teacher stands by the checker's desk where she can be unobserved by the children, at least until after they have chosen their lunches. As the child pauses at the desk to have his tray checked, the teacher lists the foods contained on the tray. This she can easily do if she has previously studied the menu and prepared an appropriate list of abbreviations, such as m. for milk, sd. for sandwich and car. for carrots. If desired she can also write the child's name and grade on the slip for future comparison of the progress made.

With these slips obtained for every child in the lunchroom, the teacher can later make pertinent tabulations as to the number and percentage of children having milk, the number having vegetables, fruit and other special foods, and especially the number having a lunch meeting a reasonable standard of adequacy, as for example that listed in the preceding article by Mrs. Martin. Unless the school is an unusual one, the results of this survey will be such as to stimulate the teacher to begin at once to improve the quality of the lunches eaten by her pupils.

These efforts at improvement should be of two general types: (1) education in the classroom of what constitutes an adequate lunch and why, and (2) supervision and informal education in the lunchroom itself to assist and direct the children in making suitable lunch choices. Some methods by which these may be accomplished are given in the preceding article by Mrs. Martin.

Frequent rechecks should be made of the lunches eaten. The method described may be used, and the results should be made available to the school. A good method of presenting this material is to have a bulletin board in the hall where a cumulative record of progress can be kept in the form of bar graphs showing the percentage of children having "A" lunches and possibly also the percentage having milk or other food which especially needs stressing in the community. Ideally these rechecks should be made daily; but this is usually not possible, and therefore weekly or monthly intervals need to be employed instead.

Whatever period is used, both children and teachers become much interested in watching their progress and are inspired to try to have their school reach the 100 per cent record. This is rarely, if ever, possible, but great improvements can be effected by such simple means. In one school, for example, a health education program was centered in the school lunchroom and succeeded in raising the percentage of "A" lunches chosen from 11 per cent in the fall to over 50 per cent by the end of a few weeks and in maintaining it at approximately this higher level for the remainder of the school year. Only the low economic condition which existed in the community during this period prevented the school from making an even higher record. Given a more favorable situation in this respect, a normal school should not rest content until every child in the school is eating an adequate lunch daily.

(Continued on page 764)

To Contributors:—*Although most of the articles in the column "Solving Health Educational Problems" are solicited, the editor of this department will be glad to consider contributions which deal with concrete and practical health education procedure in the school. Articles must not exceed 1,000 words.*

DRUGS—
As They Are Sold

Soibelman Syndicate

What, no automobile tires? But this original of the modern drug store has almost everything else, including groceries, tobacco and a quick lunch counter. It is on the banks of the Tigris in Asia Minor.

Thompson

The Chinese charlatan above is peddling drugs and amulets made from parts of the tiger's body.

Soibelman Syndicate

Despite its 146 years, the famous drug store at Topsham, England, continues to dispense pharmaceuticals. It proudly proclaims a visit by royalty in 1651 when it was the Old George Inn.

A Rhodesian sets up an elaborate display in this native shop of South Africa.

Thompson

QUESTIONS AND ANSWERS

Surgery—Operations

To the Editor:—Three years ago I read an article in HYGEIA on how to prepare oneself for an operation. I thought it might help me now if you have it. I have to have an operation for removal of the fallopian tubes and possibly the appendix. I dread it. My nerves are getting the best of me. The idea of lying asleep and having some one open my abdomen and operate prevents me from sleeping. If I do sleep, I have bad dreams and nightmares. I have nearly had several breakdowns. What will I do when they take me to the hospital? Any help you can give me will be appreciated.

P. M., Michigan.

Answer.—You should do just two things. One is to go directly to your doctor and place all your apprehensions before him.

The other recommendation is that you read the following articles, published in HYGEIA, The Health Magazine: "The Story of Anesthesia," by Dr. John H. Evans (vol. 8, p. 1014 [Nov.]; p. 1128 [Dec.] 1930); "Anesthesia," by Dr. Emil Mayer (vol. 4, p. 458 [Aug.] 1926); "Why Fear an Anesthetic?" by Barbara H. Davis (vol. 7, p. 615 [June] 1929), and "Did I Talk, Doctor?" by M. S. Strock (vol. 9, p. 338 [April] 1931).

Irving S. Cobb's little book, "Speaking of Operations," will give you a good laugh and let you see that what you are going to experience is not nearly so bad as you anticipate.

Erysipelas

To the Editor:—Please send me some information on the subject of erysipelas. J. C., Indiana.

Answer.—Erysipelas is a disease that mostly affects extremely old persons and new-born infants, in whom it may be extremely serious. It is an infection of the loose tissue under the skin; and because it occurs in loose tissue, it has a tendency to spread rapidly. The skin becomes stretched, shiny and a bright red. The patient has a high fever and is extremely sick.

Erysipelas gains access to the tissues through broken places in the skin, such as cuts and scratches, and through invisible breaks, such as the irritation due to excessively close shaving. The organism that causes it belongs to the group of pus-forming germs and is known as the streptococcus of erysipelas. Streptococcus means round germs growing in chains.

The treatment of erysipelas formerly consisted of applying cold locally and smearing on the skin various concoctions of which there were almost countless numbers, any one of which was as good as another and none of which was really valuable. Now there is an antitoxin for erysipelas which, if administered promptly, gives satisfactory results in many cases.

Erysipelas is spread largely by dirty hands. Persons who are clean in their personal habits are less likely to have erysipelas than those who are not.

Cataracts on the Eyes

To the Editor:—Are cataracts on the eyes hereditary and can they be operated on successfully? I have recently heard that in modern surgery there is no need of waiting for the cataract to get ripe. Is this true?

C. S., California.

Answer.—Hereditary cataract, appearing at birth, is often connected with actual disease in the parents and is liable to be accompanied with other defects of the eye. The cataract that appears in later years, without any injury to the eyes, sometimes seems to run in families and to depend on hereditary tendency. Such cataracts do not differ materially from other cases of what is called senile cataract. They can be removed with as good a prospect of success as can other cataracts in elderly persons.

A ripe cataract is most likely to come away without leaving behind soft, unripe material, but some elderly patients, generally 70 years of age, have a lens that is sufficiently hard to allow complete removal even if some parts remain clear. In such patients it is not so important to wait for the cataract to ripen.

If you have a question relating to health, write to "Questions and Answers," HYGEIA, enclosing a three-cent stamp. Questions are submitted to recognized authorities in the several branches of medicine. Diagnoses in individual cases are not attempted nor is treatment prescribed. Anonymous letters are ignored.

Addison's Disease

To the Editor:—Will you please explain Addison's disease? I was told it was a rare disease and that the prognosis is most unfavorable. I was also told that a serum is now available for its treatment, but that it costs about $75 for one injection, and that a physician would be unable to tell in advance how many injections a patient would need to effect a cure. The cost would run all the way from $500 to $5,000.

If the serum is used, does the patient have a good chance to recover? C. L. P., Minnesota.

Answer.—Addison's disease is a disease of the suprarenal glands first described by Dr. Thomas Addison of London in 1855. There are two of these glands resting above the kidneys. They are round flat bodies consisting of a cortex, or covering part, and a center, or medulla.

The cause of Addison's disease is frequently tuberculosis of the suprarenal glands but may be any condition which injures the cortex of the glands. The disease may come on in any period of life, but it is most frequently found in adult males. It is associated with generalized weakness, shortness of breath, loss of weight, anemia and at times with gastro-intestinal symptoms such as nausea, vomiting and diarrhea. Usually there is a discoloration of the skin during the course of the disease. The unprotected parts of the body develop a brown coloring which may later spread over the body, being especially marked where the clothes exert pressure on the skin. The outlook is unfavorable although there may be periods of temporary improvement.

The treatment in general is planned to preserve and to increase the patient's strength by rest, food and general care. Recently, in a small number of patients, favorable results have been obtained by the injection of extract of the suprarenal cortex. This treatment is planned to supply the secretion of the injured gland and, like the use of insulin in diabetes, must be continued.

The extract to which you refer is not on the market at present, and its use is still in the experimental stage.

Arteriosclerosis

To the Editor:—A recent editorial in *The Journal of the American Medical Association* recommends immersion of hands and forearms for one half hour in water kept at 110 F. for relief of pain in cases of arteriosclerosis. How many treatments are suggested to demonstrate any relief from the pains? How often and for what period should the treatments be continued?

J. D. L., South Carolina.

Answer.—The immersion of the patient's forearms in water at from 109 to 113 F. will normally produce a dilatation of blood vessels in the lower extremities. This method is used as a test rather than for treatment, as there is an appreciable difference in the various types of disease found in the blood vessels of the extremities. If, with this method, the surface temperature of the toes rises above 89 F., significant obliterative structural disease of the arteries of the lower extremities is definitely absent. If the surface temperature fails to rise to this level, arterial obstruction is probably present.

A thermoregulated foot cradle for the treatment of disease of the blood vessels in the extremities was recently described. The foot was first placed in a water bath with the water at 88 F. The temperature was gradually raised about 2 degrees every five minutes. As the temperature was raised, the pain disappeared and the color of the foot approached normal. About 93 F. or 95 F. appeared to be the best temperature for the feet of these patients. After the optimum temperature was found, the patient's foot and leg were kept in a thermoregulated foot cradle set to maintain the air at 2 degrees above the temperature optimum for that foot in water, to allow for the cooling effect of evaporation from the skin.

In many ambulatory cases, heat is applied with a simple home-made baker consisting of four electric light bulbs. The legs are placed in this baker, and the baker is covered with a blanket. An ordinary thermometer is placed in the baker on top of the legs, and the lamp bulbs are turned off or on until the desired temperature, as advised by the physician, is secured. The extremities are allowed to remain in this baker for prolonged periods, in some cases continuously. The directions for making such a baker may be secured by writing to the Secretary of the Council on Physical Therapy, American Medical Association, 535 N. Dearborn St., Chicago.

The application of heat is only one of a number of therapeutic procedures that may be instituted at the physician's discretion. Buerger's vascular exercises are as follows:

With the patient lying in bed, the affected limb is elevated from 45 to 60 degrees above the horizontal, being allowed to rest on a support for from thirty seconds to three minutes, according to the amount of time necessary to produce blanching. When this occurs, the patient allows the foot to hang down over the edge of the bed until a reactionary redness sets in. The leg should remain in this position for a period of about one minute longer than that necessary to establish a good red color. If there is severe pain, the time may be shortened. The leg is then placed in its original, nearly horizontal position for about five minutes, and radiant heat is applied. The cycle should take from six to ten minutes and should be repeated six or seven times. These exercises should be repeated as directed by the physician.

There are certain general directions to follow to avoid injury and infection. Wash the feet daily with mild soap and warm water, dry with a soft towel without rubbing, apply rubbing alcohol and allow it to dry, and then apply petrolatum by superficial stroking massage to the toes and feet. The toe nails should be cut straight across after they have been thoroughly cleaned, and care should be taken not to cut the skin. Corns and callouses should not be cut. Tincture of iodine should not be used on the feet.

To keep the feet warm, use woolen socks and wool-lined shoes in winter and plain cotton socks in summer. Socks should be changed daily. If the shoes are not wool-lined, they should be of soft leather and carefully fitted. If garters are worn, they should be attached from above, and the ordinary circular garters should never be used.

It is important to determine a level for the resting leg that will result in the best possible circulation both when the patient is sitting and when he is lying down. This can be practically determined by observations of the veins of the foot when the leg is moved to various levels in relation to the heart. If the leg is elevated above the heart level, the foot becomes white and the veins are collapsed. When the leg hangs over the side of the bed, the foot becomes blue and the veins are distended. If the leg is now gradually raised, there will be an angle where the veins are neither collapsed nor distended. This is usually at a point at which the foot is from 3 to 6 inches below the level of the heart. The leg should always be placed in this position of most favorable circulation when the patient is resting in bed or sitting.

These directions are given in detail, for details are essential in the treatment of cases of arteriosclerosis, and such efforts are necessary to establish a circulatory balance. Improvement is not to be measured by days but by weeks and months.

The inquirer should visit the physician at regular intervals for an inspection of the legs and feet and for a determination of the general condition. It is most important to consult the physician promptly when there are any signs of infections, blisters or ingrowing nails.

Exercise of Eye Muscles

To the Editor:—Have you any information concerning the efficacy of correcting faulty vision, particularly nearsightedness, through exercise of the eye muscles under the guidance of a competent physician? I understand that help can be given to persons with incorrect vision through proper treatment, other than correction of vision with glasses.

R. H., Illinois.

Answer.—Exercise of the eye muscles falls into two classes.

Exercise of the external muscles of the eye, namely, those which move the eyes up and down, from side to side, or in a rolling motion, may sometimes be beneficial in certain types of crossed eyes or other similar conditions. These exercises are carried out with the aid of prism glasses. An image, such as a burning candle, which is seen as two images, is consciously fused with the aid of the glasses until it has become one. The application of this method is limited to certain specific muscular deficiencies and is of value only in cases of that kind and in properly selected cases.

There has been placed before the public the fallacious conception of eye muscle exercises in which it is claimed that exercises of the internal muscle of the eye, which governs accommodation of the eye to near or distant vision, will restore defective sight and enable the person to dispense with the use of glasses. This is a particularly cruel and vicious practice, because it leads persons whose only hope for saving the remnants of their diminished eyesight is in proper use of glasses to abandon such proper treatment and take instead to what are called muscle exercises, which are often coupled with other devices of no merit whatever.

The recommendation, especially to nearsighted persons, to substitute muscle exercises for correct fitting of glasses is thoroughly dangerous and vicious.

"You want me to use a *pure* soap, don't you?"

It goes without saying that physicians believe that babies should be bathed with a *pure* soap.

Some confusion seems to exist, however, even among physicians as to just which soaps are pure. Laboratory tests show that a certain number of "special baby soaps," many of them imported, contain free alkali or free fatty acid. Naturally such soaps are hardly suitable for baby use.

You are probably one of the thousands of doctors who recommend Ivory for this purpose. If so here are the facts which make your recommendation a sound one.

Ivory is as pure as a soap can be made.

Ivory contains no coloring, no strong perfume, no free fatty acid.

Ivory is safe, is kind and gentle to any healthy skin no matter how young or old.

Ivory has the added advantage of being considerably less expensive than other soaps. Any and all of your patients can buy it. And it is on sale at any store that sells soap.

IVORY SOAP

99 44/100 % Pure · It floats

Your Dentist's Detective

"It's a good thing we made these X-ray pictures. Here's a small hidden cavity which I could not discover without my X-ray detective."

POSTPONING a visit to your dentist is not postponing trouble. It is bringing it closer. Time and money will be saved by a visit to your dentist every six months. It is impossible to have good health if the teeth, gums and soft tissues of your mouth are not kept in good condition.

If your dentist advises X-ray pictures of your teeth, take his advice. With the X-ray to inform him, he knows the condition of the deeper structures, the roots and the tooth sockets. In many cases early cavities can be found only by X-rays. If you have pyorrhea he may discover it at a stage in which it can be successfully treated.

Because an aching tooth demands prompt attention it is usually far less dangerous to health than the undiscovered trouble-maker. A tooth may seem to be sound and healthy and yet hidden trouble may be brewing. Infection may exist at the root of a guilty tooth long before it is suspected that anything is wrong. Meanwhile the surrounding bony structure is being broken down and destroyed, while infection may be absorbed into the system through the blood stream. Such infection may damage the heart and other vital organs, may cause eye, ear, sinus, nerve, joint or digestive trouble.

When a firmly rooted tooth is to be extracted an X-ray picture may be needed to assist the dentist. Sometimes the roots are hooked or teeth may have failed to come through the gums. In such cases damage to the jaw-bone may result from a "blind" extraction.

If you have sound teeth and gums, then a correct diet, including some hard and "crunchy" food, will help to keep them healthy. Teeth, living parts of the body, are built by food. They need the minerals contained in eggs, milk, vegetables, fruits and cereals.

On request, the Metropolitan will be glad to send its free booklet, "Good Teeth." Address Booklet Dept. 834-Z.

METROPOLITAN LIFE INSURANCE COMPANY
FREDERICK H. ECKER, PRESIDENT ONE MADISON AVE., NEW YORK, N.Y.
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Carbon Tetrachloride

To the Editor:—In the November issue of HYGEIA you mentioned danger of poisoning arising from the use of carbon tetrachloride in considerable amounts directly on the body. In a beauty magazine the other day I saw the same substance advocated as a facial cleanser and tonic, to be applied twice daily with a dampened tissue. Would its use in this way be dangerous? Do you feel it would be harmful to the skin in any other way?

D. C., Washington.

Answer.—For several reasons, it would not be advisable to use carbon tetrachloride on the face twice a day as a cleanser. Carbon tetrachloride is highly volatile and because of its rapid evaporation the user would probably breathe in a considerable volume of the drug. This is decidedly undesirable, for carbon tetrachloride is a toxic drug. Furthermore, carbon tetrachloride is the basis of many so-called dry cleaners sold under commercial names as nonexplosive substitutes for gasoline or naphtha. As such, it is a solvent of grease and its use twice daily would soon dry out the skin.

There is no occasion for using dangerous drugs to cleanse the skin as long as the supply of soap and hot water is plentiful.

St. Vitus' Dance (Chorea)

To the Editor:—Do you publish any pamphlets on St. Vitus' dance?

R. C., Pennsylvania.

Answer.—The American Medical Association has not published a pamphlet on St. Vitus' dance. St. Vitus' dance, or chorea, is a disease characterized by uncontrollable convulsive movements of the muscles that ordinarily are under voluntary control; that is, the muscles of the body, arms, legs and face. Children with chorea are sometimes unjustly accused of being intentionally irritating in school because they make faces and do things which annoy their neighbors but which they cannot help. Because of a blood-destroying or hemolytic organism, chorea is closely related to rheumatic fever and infections in the tonsils. Rheumatic fever, tonsillitis, chorea and heart disease are frequently found in association with one another, or heart disease may follow in later years. So-called growing pains, which often are not growing pains at all, may be early warnings of the approach of one of this group of conditions.

...and Jill came tumblin' after!

JACK and Jill, the pail of water, and the hill make a gay nursery rhyme. But the tumbles of the many real Jacks and Jills and their dads and mothers are often serious. They are the cause of bruises, sprains, and broken bones.

When an obvious fracture has resulted from an accident it is, of course, almost immediately x-rayed so the physician can see the position of the fragments and replace them correctly. But what appears to be only a bruise or sprain is not always considered so carefully. Oftentimes there is an obscure break which, unattended, can develop serious complications. Only the x-rays can show definitely how grave such an injury really is. So it is essential also to have sprains and serious bruises radiographed.

X-ray examination allows the physician to "see" the conditions he must treat. He can act more promptly—more directly. Whether in an emergency or in a periodic examination, radiographs play a most important part.

Have an Annual Health and X-ray Examination

NRA CODE

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For Expectant Mothers

Upon the food you eat in the next few months depends so much of your own —and your baby's—well-being.

Will the little newcomer arrive in good working order—with fine, full chest and straight bones? Will your own bones and teeth be safeguarded.

As a contribution to the diet, the regular use of Cocomalt, mixed with milk, is suggested. Cocomalt provides *extra* proteins, carbohydrates, minerals (calcium and phosphorus). It is rich in Sunshine Vitamin D—one ounce containing 105 U.S.P. (revised, 1934) Vitamin D units from irradiated ergosterol. Calcium, phosphorus and Vitamin D all are necessary for the development of strong bones and sound teeth.

Cocomalt is accepted by the Committee on Foods of The American Medical Association. It is sold at grocery and good drug stores in ½-lb., 1-lb., and 5-lb. cans. Or send name and address (and 10c to cover cost of packing and mailing) for trial-size can.

R. B. Davis Co., Dept. 9-H, Hoboken, N. J.

Cocomalt

A nutritious food composed of sucrose, skim milk, selected cocoa, barley malt extract, flavoring and added Vitamin D.

Is Your Baby Troubled with I-C
INDIGESTION CONSTIPATION

Exercise Often Helps!

Babies need exercise the same as grown-ups to prevent Indigestion and Constipation troubles. In a Teeterbabe, baby can exercise to its heart's content, developing its muscles and aiding its little organs to function. Physicians endorse it highly for this reason —also because it does not suspend baby by the crotch.

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Do You Know—

1. Why an increased amount of salt in the food in hot weather keeps one more comfortable? *See page 689.*
2. The symptoms of infantile paralysis? *See page 684.*
3. What the late Charles W. Eliot of Harvard said regarding animal experimentation? *See page 687.*
4. How to overcome a child's fear of dogs? *See page 706.*
5. Some good recipes for outdoor meals? *See page 700.*
6. The real cause of most child behavior problems? *See page 723.*
7. Why a "steady occupation" is beneficial to the health of women? *See page 711.*
8. Why the modern baby shows signs of dentition earlier than his mother or father did? *See page 696.*
9. Why dead teeth turn dark? *See page 708.*
10. Under what conditions children should be allowed carbonated beverages? *See page 738.*
11. In what way modern education has been turned hind side before? *See page 714.*
12. How to give a bedridden patient a bath? *See page 718.*
13. The three steps of a well planned health-building program? *See page 734.*
14. The relationship of mind and body? *See page 721.*
15. How to get rid of tapeworm? *See page 730.*
16. When a man is a man? *See page 726.*
17. Why the eyesocket is called the orbit? *See page 692.*

NEW TYPE SOAPLESS SHAMPOO

A MARVELOUS scalp cleanser and hair beautifier that thoroughly dissolves and removes all accumulations and dirt from the scalp and hair shaft, leaving the hair soft, lustrous, and pliable. No acid rinse necessary; equally effective in hard or soft water; excellent for children.

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Schools and Camps

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Home school for nervous, backward children. *Best in the West.* Beautiful buildings. Spacious grounds. Experienced teachers. Individual supervision. Resident physician. Enrollment limited. Endorsed by physicians, educators. Booklet. E. Hayda Trowbridge, M.D., 1810 Bryant Bldg., Kansas City, Mo.

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WIDE RANGE OF MEDICAL EXHIBITS AT CENTURY OF PROGRESS

Medical and health exhibits in the Hall of Science at the 1934 Century of Progress have been enlarged 50 per cent over those on display in 1933. Twelve completely new departments have been developed in this group and include:

1. The story of the development and structure of man; embryology and anatomy.
2. The story of the use of live animals in the detection of human diseases.
3. Orthopedic surgery and its history. Methods of treating fractures among the early Indians and under modern practice.
4. Common blood diseases, such as pernicious anemia, with their treatment; the liver diet and other treatments.
5. The tannic acid treatment for burns.
6. Exhibits of the thyroid gland, stomach, blood vessels and their diseases.
7. Diseases of animals and those animal diseases transmitted to man. The use of animals in the treatment of both animal and human diseases.
8. The history of the Roentgen ray, its uses and possibilities.
9. The value of spas and the rest cure.
10. An exhibit contrasting the coroner system and the medical examiner system of investigation into deaths.
11. The evolution of resuscitation in life saving.

The teletactor, an instrument which enables the deaf to tell what a speaker is saying by transmitting sound vibrations to them in such a manner that they can understand by feeling them, is also on display. The teletactor is also useful in the teaching of the blind. One of the instruments is set up for visitors to operate.

In another exhibit is a huge tooth, ingeniously patterned after a natural tooth, and built with lights and color that show enamel, pulp, blood vessels and all other essential factors of construction. It portrays clearly how decay cuts through the enamel and travels gradually into the roots.

Knowledge concerning amebic dysentery, heart disease, hay fever, rabies, hemophilia, focal infections, encephalitis, sanitation of water supplies, and the technical work of health departments is also portrayed in interesting and educational fashion.

Any fool can get sick, but it takes a wise man to get well.

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Heinz Strained Foods include 8 varieties—Mixed Vegetables, Peas, Green Beans, Spinach, Tomatoes, Carrots, Beets and Prunes.

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NEW UP-TO-THE-MINUTE BOOK ON BABY DIET

The entire science of vitamins and minerals—and vegetable feeding is revealed in this new, valuable 60 page book—"*Modern Guardians of Your Baby's Health*". All facts in it have been accepted by the Committee on Foods, of the American Medical Association. Send, with the coupon below, the labels from three Heinz Strained Foods tins and receive your copy. Or send coupon with 10¢.

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Send me my copy of the new 60-page book, "Modern Guardians of Your Baby's Health". I enclose 3 Heinz Strained Foods labels—(or 10¢ in coin or stamps.)

My Name_____

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HEINZ Strained Foods

A Group of the 57 Varieties

A HOUSEWIFE LOOKS AT THE COMMITTEE ON FOODS

(Continued from page 741)

lowing: sugar, invert sugar, dextrose, with or without the addition of caramel color. Ginger ale flavor, or ginger ale concentrate, is the beverage flavor in which ginger is the essential constituent, with or without aromatic and pungent ingredients, citrus oils, fruit juices and caramel color. Ginger is defined as being obtained from a plant divested of its outer bark or husk, so that the outer bark, or any other plant which might be prepared to taste like ginger, is not legally ginger.

The government also defines sarsaparilla in the same general way as it does ginger ale. Sarsaparilla flavor is defined as a beverage flavor prepared from oil of sassafras and oil of wintergreen or oil of sweet birch. Other ingredients used by one company for improving the flavor include extracts of vanilla, pipsissewa, gentian and yarrow, and sirup of wild cherry bark.

Cream soda water, "cream soda," is also defined. In this, the characteristic flavor is derived from cream soda water concentrate, a flavor prepared from vanilla, tonka, vanillin or coumarin, singly or in combination, together with other flavoring substances, with or without the addition of caramel color. A little milk added to a glass of this beverage increases its nutritional value.

Birch beer has the same general definition as the other carbonated beverages, with birch beer concentrate for flavor, which is similar to the sarsaparilla flavor except that the oil of sweet birch or oil of wintergreen predominates.

The general definition of root beer reads the same, except that some other ingredients are added which change the flavor somewhat. A brand of a root beer carbonated beverage which has been accepted by the Committee on Foods is prepared under license grants; the licensed factories agree to prepare the beverage according to the prescribed formula and method of preparation and advertising prepared by the company, and the plants are inspected by the company a number of times each year. The number of calories furnished are 0.4 per gram, or 11 calories to the ounce. The manufacturer claims it is a "refreshing carbonated root beer extract beverage."

This company makes a root beer extract for use in the home by the housewife who wishes to prepare an inexpensive beverage. Root beer has an interesting history. A chemist vacationing in the country tasted a delicious beverage made by a farm housewife; she called it "herb tea." The chemist secured the recipe and studied it. He found that it was not a drink that would be satisfactory for regular, continual use, and so a beverage was planned which was made from many strange, foreign herbs, as well as domestic ones. When it was ready to be introduced to the public at the Centennial in 1876, the name "herb tea" did not seem to be a good one to appeal to working men who were accustomed to drinking whisky, and it was decided to include beer in the name.

A package containing roots, herbs, barks and berries was offered at that time to the housewife who wished to brew her own "herb tea" by soaking, boiling, straining and finally bottling it. Later this package of dry herbs was replaced with a bottle of liquid root beer concentrate, with directions for home preparation of the beverage.

The concentrated extract contains caramel and extracts of sassafras, sarsaparilla, licorice and ginger roots, juniper berries, dog grass, birch bark, hops, spikenard and pipsissewa herbs, vanilla beans and wintergreen and deer tongue leaves. The materials are cleaned, dried and ground. After the flavorings are extracted, the material is clarified in order to make a clear root beer. It does not contain alcohol, alkaloids, coal-tar color or harmful ingredients. It contains a fraction of 1 per cent of ash, some volatile oils and about 5 per cent of sugar. It is suitable for the preparation of a delicious beverage which is entirely harmless and not habit forming.

The Seal of Acceptance appears only on those root beer concentrates, or extracts, that are made with genuine flavors, and there are only two brands that have been accepted. The principal advantage of a home-made root beer is that it furnishes a delicious summer beverage at a cost so small that it is hardly noticed, and it encourages the drinking of water.

In a beverage, the natural flavors contribute to the production of a smoother, more finished effect, which appeals more readily to those of discriminating taste than do the beverages made of synthetic flavors.

Next to sugar, acid is one of the most widely used ingredients of bottled carbonated beverages. Of the various acids suitable for this purpose, the citric acid of lemons and the tartaric acid of grapes are

NEW GUARANTEE
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PURCHASERS of six Hygeia Nursing Bottles and six Nipples now get a Guarantee against bottle breakage *from any cause whatsoever.* Details in new blue cartons. The Hygeia Bottle has no shoulder or neck to collect *dirt.* No brush or funnel needed to clean or fill it. The Hygeia Nipple does not collect food particles. Patented tab keeps fingers from sterilized inside surface. Patented reinforced base resists nipple collapse. Dirt causes intestinal disorders. Use Hygeia Bottles and Nipples. *Use Hygeia Strained Vegetables too.*

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most frequently used. Phosphoric acid of mineral origin is used in the phosphate beverages. Acetic and lactic acids may be used. Hydrochloric and sulphuric acids give a raw, harsh drink. Italy long supplied the world with citric acid; but during the last few years this industry has grown in the United States so that it is now possible to meet all the demands for this acid for the beverages bottled in our own country, and some citric acid has been exported. Citric acid in a beverage has the same value that it has when present in lemons and other citrus fruits, except that it is used in only small amounts in the carbonated beverages. Root beer and cream soda contain less acid than the other beverages.

The U. S. Department of Agriculture has published rulings on the appropriate use of the terms "ade," "squash," "punch," "crush" and "mash" as part of the names of food articles when used in conjunction with the name of the fruit. These terms can be applied correctly only to beverages, whether still or carbonated, which contain a substantial quantity of the fruit named. The terms are not to be applied to products flavored only with essential oils or essences unless these products are plainly labeled as imitations. An imitation product must be labeled with the word "imitation" together with a statement showing wherein it is an imitation. Ordinarily, such a statement would declare the ingredients of the beverage that give the article its principle characteristics, in the order of their decreasing proportions. The distinctive labeling, as required, permits the purchaser to recognize the nature or identity of the fruit product, fruit beverage or imitation beverage and prevents the deception that might be practiced by foisting on the public as fruit juice a fruit beverage containing only a small quantity of fruit juice, or as fruit beverage an imitation beverage flavored only with the essential oils or essences. Fruit juices have entirely different and broader nutritional values than the beverages that do not contain any fruit material or those that contain only a small proportion of it. Since the Committee on Foods requires accepted foods to comply with the Food Law, these requirements of the Department of Agriculture are a part of the requirements of the Committee. It is the purpose of the Committee that all foods shall be labeled and advertised so as to protect the health and nutrition of the public.

Make NIVEA Your Aid and Ally AGAINST SUN and WIND!

Sun and wind can hurt, or help your skin. With Nivea Skin Oil, the benefits are unalloyed!

Before and after exposure, rub on this fragrant, bland, liquid cream! You need not fear the hot August sun—your skin will be healthfully tanned, not painfully burned.

Men and children, as well as women, know the effectiveness of Nivea. A few drops a day furnish dependable and economical protection. Nivea's skin-related element, Eucerite, quickly replenishes the skin's normal lubricant lost through drying exposure to wind and sun. Nivea is also excellent as powder base, night cream and cleanser.

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Carbonated beverages such as those described in this article serve as refreshing drinks and are wholesome from the standpoint of nutrition. The carbon dioxide gas that escapes naturally from soda springs may be used for carbonating beverages, but most carbon dioxide is derived by chemical methods and compressed into cylinders from which it may be released at any desired pressure in the carbonating machines at bottling plants. The capacity of a liquid for holding carbon dioxide is about twice as great at ice-cold temperature as it is at room temperature; and for this reason, a carbonated beverage should always be thoroughly chilled before the bottle is opened. To preserve more of the carbon dioxide, the beverage may be sipped through clean straws direct from the bottle, rather than having it poured into glasses. In soda fountains, sanitation is another reason for this method, for the glasses may not be thoroughly cleaned.

Carbonation accentuates flavors and has a physiologic refrigerant effect which is pleasing, and it helps to sell certain beverages that would otherwise lack flavor and popular appeal. Sometimes ginger ale is tolerated when plain water would be nauseating to a hospital patient. Carbonated beverages may be mixed with milk to make the flavor more pleasing. Some carbonated beverages are used to disguise the flavor of unpleasant medicines. A carbonated beverage is a welcome accompaniment for raw liver.

Carbonated beverages may furnish interesting flavor in many salads, desserts and frozen dishes, as well as in punches, egg nogs, and mixtures using ice cream and other nutritious foods.

The members of the national trade association of the industry, known as the American Bottlers of Carbonated Beverages, must sign and observe a strict sanitary code. This organization has checked up on the cleanliness of plants, has raised standards and quality and has sponsored research work for obtaining facts which form the basis for publicity.

Actual comparison of high quality beverages with those of poor quality will do more to convince one of the real quality of the drinks than any reports of a chemist.

[NOTE.—In the September HYGEIA, Mrs. McCray will discuss biscuit mixes. Lists of the accepted foods discussed each month will be sent on receipt of 6 cents in stamps.]

SCHOOL AND HEALTH (*Continued from page 753*)

NEW HEALTH BOOKS for teachers and pupils

THE NATIONAL Committee for the Prevention of Blindness, Inc., 370 Seventh Ave., New York City, has recently sent me a large package of its publications. These are varied in character and cover in a general way the whole field of hygiene relating to the eye. For example there are pamphlets with the following titles: "Eye Troubles In Mid-Life and Later," "Take Care of Your Eyes," "Lighting The Schoolroom," "Methods of Teaching Sight-Saving Classes," "School Hygiene and the Prevention of Blindness." These pamphlets may be secured free or at nominal prices.

ALTHOUGH nobody knows as yet what the coming social order is to be, there is general agreement that in the future there will be much more leisure for a larger number of people than ever before. It is no exaggeration, therefore, to say that the way this leisure is to be used will play an important part in the future of the boys and girls who are in school now. Keenly recognizing the importance of this problem, Eugene T. Lies has made a careful investigation of the subject and aptly calls his book "The New Leisure Challenges The School." [1] Mr. Lies shows the need of a kind of education which will enrich life through avocational activities; he describes what is now being done and gives definite suggestions for particular things which may be done by the schools.

ONE CANNOT read this suggestive "Handbook of Health Education—A Guide for Teachers in Rural Schools" [2] without feeling that the future of health education in rural schools would be in safe hands if all teachers could be stimulated and guided to attack their problems as the teachers in Cattaraugus County, N. Y., are attempting to solve theirs. This handbook, although in tentative form, shows profound thinking and planning. It outlines specific aims, values and methods in health teaching. Specific health units are developed. There are many references to subject matter for pupils and teachers. This handbook would be valuable for any rural school teacher and would be highly suggestive to any rural school supervisor.

IN 1921 the Philadelphia College of Pharmacy and Science inaugurated a course of popular lectures during the winter months. They were so well attended that they have been given annually ever since. A demand arose for the lectures in book form. The college now makes available, as a part of its educational program, the "Popular Science Talks by Members of the Faculty of the Philadelphia College of Pharmacy and Science" [3] in paper covers at cost. Most of the lectures have a bearing on health.

The tenth volume contains a series of lectures on thirteen interesting topics. Among the articles that would be of especial value to students and teachers of hygiene are "Triumphs of Medicine," "The History and Romance of Bread," "Insect Friends and Foes," "Vitamins and Manufactured Ice Cream."

THESE two little books, "The Road to Health, First Book" and "The Road to Health, Second Book," [4] are very attractive mechanically. The paper, print and illustrations conform to the best standards. They are quite unique in having no preface or introduction for the teacher, so that one is left free to imagine where and how they might be used most effectively. They seem to be primary books adapted for the first and second grades. Apparently the authors are interested in the inculcation of health habits. Unfortunately many pages are devoted to an enumeration of health habits. The psychologic theory back of these books is that if the child reads about health activities in which the "I" plays a part, the habits will be formed. For example, the first book begins:

I wash my hands.
I wash my hands with water.
I wash my hands with soap.
I wash my hands with soap and water.

The first eleven pages are concentrated on reading material in which the "I" and the "We," engaged in washing and cleanliness, play an important part. It is a question whether or not this kind of an approach will make the actual washing of hands and face and the matter of personal cleanliness less attractive rather than more attractive to the child.

1. By Lies, Eugene T. Price, $2 (cloth); $1.50 (paper). Pp. 326. Washington, D. C.: National Recreation Association, 1933.
2. Edited by Ruth E. Grout. Mimeographed and in tentative form. Pp. 162. Olean, N. Y.: Bartlett Memorial Community Center.
3. Vol. 10. Price, $1. Pp. 307. Philadelphia: Philadelphia College of Pharmacy and Science, 1932.
4. By Bundesen, Herman N., and Manny, Corinne. Pp. 96 and 125. Chicago: Laidlaw Brothers, 1933.

A BIBLIOGRAPHY for solving health education problems

A Three-Way Educational Program for the School Lunchroom. *The Nation's Schools,* March, 1934. Price, single copy, 50 cents. Chicago: Nation's Schools Publishing Company.

Discusses utilization of lunchroom learning situations, integration of lunchroom practices with classroom teaching and the lunchroom as a potential factor in community education.

Educative Values in the School Lunch. *Journal of Home Economics,* July, 1932. Price, single copy, 30 cents. Baltimore.

Summarizes, under six topics, educational practices in connection with the school lunch.

Healthy Attitudes Toward Health. Practice and Procedures in an Integrated Play School Program. Pamphlet No. 3. Price, 20 cents. New York: Child Study Association of America, 1932.

Gives special emphasis on the integration of health in all school activities.

Johnson, George E.: Why Teach a Child to Play? Price, 12 cents. Pp. 11. New York: National Recreation Association, 1909.

A brief presentation of the modern philosophy of play and its value.

Kiddoo, Faith: The School Lunchroom. *American Schoolmaster,* March 15, 1930. Price, single copy, 20 cents. Ypsilanti, Mich.

A place "for the exercise of positive habits and controls that will work consistently toward a worthwhile social being."

The Rural Hot Lunch as a Health and Social Activity. Free. Pp. 19. Albany, N. Y.: University of the State of New York, 1932.

Lies, Eugene T.: The New Leisure Challenges the Schools—Shall Recreation Enrich or Impoverish Life? With illustrations. Price, $2; paper, $1.50. Pp. 326. New York: National Recreation Association, 1933.

McCulloch, Joseph H.: A County Play Day. *Journal of Health and Physical Education,* March, 1932. Price, single copy, 35 cents. Ann Arbor, Mich.: American Physical Education Association.

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TREATMENT OF RABIES IS PREVENTIVE RATHER THAN CURE

The first recorded death from rabies was that of Akteon, son of Aristeus, a pharaoh of Egypt in 1300 B. C. From that time to the present the disease has been a constant source of dread. Treatment has been based on mystic formulas, superstition and witchcraft, and the Greeks in olden days even had a special god, Aristaeus, son of Apollo, to guard against rabies.

Superstition regarding the disease has not entirely disappeared today. In parts of Russia, sea bathing is used to drive out rabies, and in Oklahoma some persons still believe that the "mads'one" will prevent the disease.

Pasteur in 1885 first gave the vaccine to an Alsatian boy and thus established a rational, scientific method of treatment. It was not until 1903, however, that Negri, an Italian physician, discovered the round or oval areas of destruction, or Negri bodies, in the large brain cells of animals that had died of rabies.

Rabies is not a bacterial or germ disease. It is contracted through the saliva of a rabid animal; and if there are germs, they are so small that they cannot be seen with the best microscopes. The saliva can be passed through the finest filters, filters so fine that bacteria cannot go through them; and when the filtered saliva is then injected into animals, it reproduces the disease. This virus, or poison, is also unusual because it travels along the nerves rather than by the blood. This is an important fact, for the slow progress of the virus to the brain, as a rule, allows time for the vaccine to build up the patient's resistance. Of course, if the bite is close to the brain, the time in which to do this is limited; for this reason, face bites are the most dangerous.

The treatment is not a cure but a prevention, and the patient's highest resistance to the disease is not reached until about one month after the first injection. Treatment is not dangerous and does not make the person ill. It should be started at once after a person is bitten by a strange animal or one that acts peculiarly; for once symptoms of the disease have developed, nothing can save the patient's life.

Persons are in danger of the disease by getting saliva of the rabid animal on their hands, even though they are not bitten. Rabies may occur any time during the year, and vaccination of animals against rabies does not always prevent the disease.

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Marcelle Face Powders and *Face Cream* are made to comply with the rigid standards of the American Medical Association as to claims, with every ingredient U. S. P. Pure (the standard of the U. S. Pharmacopoeia). Marcelle Cosmetics are non-allergic* powders and creams that bring triumphant results—and are always *safe* to use.

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*Orris root and rice starch in cosmetics bring on annoying allergic reactions—pimples, blotches, sneezing, running eyes, coughing, etc. Victims of hay fever, rose fever, etc., are warned to use *non-allergic* cosmetics. Marcelle Cosmetics do *not* contain Rice Starch or Orris Root.

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TYPHOID INOCULATION IS VACATION NECESSITY

If you are making a list of things to take with you on your summer vacation or to do before you go, put at the head of the list, unless you have been vaccinated within the last two or three years, "Go to my doctor for the three inoculations that will protect me against typhoid."

This advice is given by the Maryland department of health to all vacationists alike whether or not they are campers, whether they are children or adults, or whether they travel by automobile, boat, bus, train or airplane.

Typhoid is a "filth" disease, and every case comes either directly or indirectly from some previous case. The germs that cause the disease pass out of the system of a person who is ill with it, or who has had it at some time, in the discharges from the intestines and bladder. Unless great care is taken to disinfect these discharges before they are disposed of, the germs spread into the soil and pollute it or pass into stream or wells and contaminate the water supply. "Carriers," or persons who are apparently well but who have had the disease at some time, are a constant source of danger in spreading the disease if they are careless in their personal habits and neglect to wash their hands thoroughly after visiting the toilet. Flies are another source of danger, as they may carry germs from sewage to food.

Typhoid is contracted by way of the mouth, through water, milk or other foods contaminated by typhoid germs.

GAINING WEIGHT

Underweight is not as serious in an adult as in a growing child, but the ideal condition is to be neither too fat nor too thin.

Rest is imperative for gaining weight.

If you are underweight:

1. Get weighed and find out how many pounds you should gain.
2. Consider whether you have any symptoms which indicate disease. If so, consult your physician for an examination.
3. Change your personal habits, if necessary, so as to
   a. Get 8 or 9 hours of sleep every night.
   b. Relax as much as possible.
   c. Spend an hour or more each day in the fresh air.
   d. Exercise regularly.
   e. Eat plenty of wholesome food.

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A—is for AUGUST, the month you'll arrive.
B—is for BABIES, may all of you thrive.
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D—is for D-AP-R—we've got your number!
E—is for EV'RYONE who's glad you are here.
F—is for FOODS you'll start eating this year
—and
G—is for GERBER'S the finest of all,
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It's in your grocery or drug store. You'll recognize it by the complete Gerber display of famous blue and white cans. Look for this display, with the Gerber Baby picture. Choose what your pediatrician prescribes, and you'll be sure of giving your baby the finest strained foods he can get.

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9 Strained Foods for Baby

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HOBBY HOUR IN CAMPS ADD TO CHILDREN'S DEVELOPMENT

Summer camps for children have become an institution in modern American life, and hobby hours in which campers may develop their special interests are suggested as a camp program feature by *Recreation.*

First aid and health talks were also sponsored in a camp. All campers interested were invited to hear a member from the medical staff speak on first aid. Bandaging was demonstrated, and the children learned how to make a stretcher by folding a blanket so that it could be used to carry an injured comrade in case of emergency.

The following hobbies offer a range of choice:

NATURE LORE	
Outdoor Cooking	Flower Boxes
Camp Craft	Star Charts
Forestry	Labeling Trees
Trees, Bird Lore	Totum Poles
Fern Boxes	Knots
Astronomy	Sparder Prints
Gardening	Trapping
WATERFRONT	
Swimming	Canoeing
Diving	Rowing
Life Saving	Water Carnival
ATHLETICS	
Corrective Gym	Volley Ball
Baseball	Tennis
Basketball	Paddle Tennis
DRAMATICS	
Story Telling	Pantomime
Pageantry	Masquerades
Circus	Shadow Graf
Plays	Costuming
MUSIC	
Group Singing	Operettas
Piano	Toy Orchestras
ARTS AND CRAFTS	
Art Sketching	Weaving
Leather Craft	Decorating Indian Tepee
Paper Craft	
Wood Carving	Rock Garden
Kite Making	Bird Houses
Pottery (outdoor firing)	Puppets
	Marionettes
MISCELLANEOUS	
Camp Fires (various types of fires)	Photography
	Archery
Library	Hiking
Map Making	Track Meets
Newspaper	Hare and Hound
Picnics	Tumbling
Ping Pong	

Walking in the fresh air is one of the best forms of exercise; it improves the circulation, digestion and elimination. Plan to spend a certain part of each day in the open air; breathe deeply. A leisurely after-dinner walk aids sleep. The door to good health is open; *walk* through it.—*Chicago Tuberculosis Institute.*

Books are a guide in youth and an entertainment for age.—*Collier.*